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Relationship of Rehabilitation Counselors' Ethnicity Match and Cultural Competency to Service Provision and Employment Outcomes for Vocational Rehabilitation Consumers

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Relationship of Rehabilitation Counselors' Ethnicity Match and Cultural Competency to Service Provision and Employment Outcome for Vocational Rehabilitation Consumers

by

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Dedication

I dedicate this dissertation to my husband and three wonderful daughters who have been my inspiration, my foundation and who have selflessly given of themselves to support me throughout this doctoral program.

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Relationship of Rehabilitation Counselors' Ethnicity Match and Cultural Competency to Service Provision and Employment Outcome for Vocational Rehabilitation Consumers

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The purpose of this dissertation is to explore whether rehabilitation counselor/consumer racial similarity is related to rehabilitation services provided and employment outcomes achieved. This research contributes additional information to the research base on how to educate and train practicing vocational rehabilitation counselors to support culturally and linguistically diverse (CLD) consumers more effectively. Information regarding racial dyads may help to articulate whether CLD counselors are more effective with CLD consumers.

Utilizing the RSA-911 data file submitted by California for fiscal year 2006 as well as 189 *Multicultural Counseling Inventory* (MCI) surveys collected on practicing vocational rehabilitation counselors, ANOVA, MANOVA, ANCOVA and chi-square

analysis were used to measure relationships among counselor and consumer dyads that were either similar or dissimilar in ethnicity and case service variables and outcome variables. Additional analysis focused on the influence of high versus low cultural competency of rehabilitation counselors and the same consumer case service and outcome variables.

Study results revealed statistically significant differences on MCI total scores between counselor ethnic groups, with Hispanic counselors demonstrating the highest mean scores overall on the MCI. In addition, significant differences existed between counselor ethnic groups on MCI total scores, as well as all four subscale scores. Chi-square was used to investigate the effect of counselor ethnicity and cultural competency scores on the case service variables of job search, rehabilitation technology, maintenance and college training, as well as outcome variables of competitive employment. MANOVA and ANCOVA were used for the continuous outcome variables of cost of services, wages at closure and weekly earnings at closure. Significant chi-square results were found for some of the service and outcome variables for both the matched counselor/consumer dyads and the counselor competency score groups. More significant findings existed in the ANCOVA analysis for cultural competency scores than for matched ethnicity groups. Implications of the findings and suggestions for future research are discussed.

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CHAPTER 1

INTRODUCTION

Background of Study

The state-federal vocational rehabilitation system is plagued with inequities in service provision and employment outcomes for culturally linguistically diverse individuals (CLD) with disabilities (Wilson, 1999; Wilson, 2004). While research has indicated that the most significant factors that determine successful rehabilitation reside at the client level (Bellini, 2002; Bellini 2003), one cannot discount that the vocational counselor profoundly influences the process. A power differential exists in the vocational counseling relationship due to the counselor's ability to provide tangible products and services to clients. Counselors pay for and provide services to ameliorate barriers to employment. Therefore, the decisions counselors make as to whether to provide services or not may be heavily influenced by their own biases, beliefs, and stereotypes. Understanding why CLD individuals receive services that are geared towards maintenance and support (Wheaton, Wilson & Brown, 1996) and less towards educational programming and retraining requires that state vocational rehabilitation professionals look introspectively at their own biases, prejudices, and stereotypes.

Bias, prejudice, discrimination, and stereotype are strong words, but they must be a part of the discussion regarding possible explanations for inequitable access and practices that disadvantage one group from another. With respect to employment, that could mean that individuals with disabilities, especially CLD individuals, cannot effectively compete

for employment because of a lack of adequate preparation and skills or an absence of substantive experience. It is the function of a rehabilitation counselor to prepare consumers for employment. If rehabilitation counselors lack the skill, experience, knowledge of awareness pertaining to cultural and linguistic diversity, they are unable to effectively serve their consumers. This dissertation focuses a critical lens on how vocational rehabilitation counselors serve CLD persons with disabilities.

Vocational rehabilitation counselors have a social if not moral responsibility to look beyond their own prejudicial beliefs and be accountable to the public that they serve. This responsibility comes from the Code of Rehabilitation Counselor Ethics that establishes the professional code of conduct for certified rehabilitation counselors. Inherent in this code of professional ethics is a willingness to reflect upon personal practice. Self-reflection upon personal bias and a willingness to step beyond what is comfortable and safe is a counseling prerequisite.

Cultural competence is a fundamental and intrinsic aspect of the counseling repertoire. While the construct of cultural competence can only be hinted at through the use of self-report inventories, assessing counselor attitudes and beliefs in concert with their performance allows rehabilitation counselor education programs and state agencies to assess what professional development and or training might be necessary to support counselors to serve CLD individuals more effectively. Developing social services - specifically vocational rehabilitation services- that are responsive and sensitive to the heterogeneity of the population, demonstrates economic accountability of tax dollars spent to support this programming. Responsive vocational programming maximizes successful

outcomes for traditionally underserved individuals in the labor market and provides the equitable access to employment opportunities they deserve.

Disability, Poverty and Unemployment. A successful employment outcome (employment) is the end goal of the vocational rehabilitation process. And yet, individuals from culturally and linguistically diverse (CLD) backgrounds experience differential acceptance rates for vocational services, differential services while engaged in the process, and are not as successful as Caucasian individuals in their outcomes (Wilson, 2004; Wilson, Jackson & Doughty, 1999; Wise, 1998; Wright, 1986). This is particularly alarming given that the rates of disability in the U.S. for various CLD groups vary considerably. While the overall rate of disability in the population is 19.4%, rates of disability among various CLD groups are 21.9% for Native Americans, 20% for African Americans, 15.3% for Hispanics, and 9.9% for Asian and Pacific Islanders (Bradsher, 1996). These statistics, coupled with the fact that most rehabilitation professionals are middle aged, Caucasian, females starkly illustrate the need to cultivate more culturally responsive service delivery within the field of vocational rehabilitation. They also convey the necessity of rehabilitation counselor education and training programs to foster the development of cultural competency within the field of vocational rehabilitation to ameliorate these disparities. Understanding these disparities promotes awareness of how disability rates vary among various CLD groups, and encourages vocational rehabilitation counselors to consider the multiplicity of factors that influence the vocational process in a culturally responsive and holistic manner. See Table 1 for more information.

Table 1 Disability Statistics

Percent of Americans with a disability/severe disability 1991-1992, by racial/ethnic group

	African American	American Indian	White	Hispanic Origin	Asian/Pacific Islanders
Per Percent with Disability	20.0	21.9	19.7	15.3	9.9
Per Percent with disability, ages 15-64	20.8	26.9	17.7	16.9	9.6
Per Percent with severe disability	12.2	9.8	9.4	8.4	4.9
Per Percent with severe disability, ages 15-64	12.7	11.7	7.4	9.1	4.5

Source: Bradsher, J.E. (1995). Disability among racial and ethnic groups. Disability Statistics Abstract, 10, 1-4.

According to the 2000 Census Bureau report, the average African-American family median income was $33,300 in comparison to $48,500 for non-Hispanic Caucasian families. In 2001, the U.S. Census bureau reported that 23% of African-Americans in comparison to 8% of non-Hispanic Caucasians were living at the poverty level. In March 2002, the unemployment rate for Blacks was twice that for non-Hispanic Whites (11% and 5%, respectively). According to a 2002 U.S. Census Bureau report, 22.1% of Hispanics in comparison to 11.6% non-Hispanic Caucasians work within service occupations. 14.2% of Hispanics in comparison to 35.1% of Caucasians work in managerial or professional occupations. Among full-time year-round workers in 2002, 26.3% of Hispanics in comparison to 53.8% of non-Hispanic Caucasians earned $35,000 or more. According to the same 2002 study, 21.4% of Hispanics in comparison to 7.8% of non-Hispanic Caucasians were living at the poverty level. Hispanics represented 13.3% of the total U.S.

population but constituted 24.3% of the population living in poverty (Office of Minority Health, 2000).

Service Disparities. The issue of culture and ethnicity and the provision of rehabilitation services to members of ethnic minority groups is one of the most significant contemporary challenges facing the rehabilitation counseling profession (Alston & Bell, 1996; Bellini, 2003; Middleton, Rollins, Sanderson, Leung, Harley & Ebener et al. 2000). U.S. Census projections indicate that racial minorities will constitute a larger percentage of the population in years to come (up to 47% by 2050) (Capella, 2002). Research documents that individuals from ethnic minority groups have a higher incidence of disability as presented in the 1992 amendments to the Rehabilitation Act. If a greater percentage of the population of persons with disabilities comes from ethnically diverse backgrounds, then it stands to reason that the vocational rehabilitation system will face increased demand for culturally sensitive services and workers (Capella, 2002).

Disparities in how the vocational rehabilitation service delivery system assists persons of different ethnicities towards successful rehabilitation have been the subject of considerable debate. The debate ignited with Atkins and Wright's (1980) seminal piece that found disparate service provision among black (African American) applicants and white (Caucasian or European American) applicants with disabilities. They found that not only were African American applicants with disabilities not accepted for vocational services as frequently as their European American counterparts, but that they were more often closed without being rehabilitated. Furthermore, such cases closed successfully were more likely than their European American counterparts to be placed in lower paying jobs (Atkins &

Wright, 1980). Bolton and Cooper (1980) commented that these findings were not necessarily a reflection of discriminatory practices in the vocational rehabilitation program, but could be due to factors other than ethnicity, such as severity of disability, level of education, and other demographic variables.

Since then, the discussion has become more contentious as research has shown that clients from different racial groups continue to experience differential patterns of service and outcomes (Bellini, 2003; Dziekan & Okocha, 1993; Feist-Price, 1995) and experience counselor bias (Wilson, Harley, McCormick, Jolivette, & Jackson, 2001; Wilson, Jackson &Doughty, 1999; Wheaton, Wilson & Brown, 1996; Wheaton, Finch, Wilson & Granello, 1998). In fact, rehabilitation programs have been largely unsuccessful for Americans who have disabilities and are members of various ethnic minorities (Dziekan & Okocha, 1993). And, given that members of ethnic minorities experience disability at a higher rate than their majority white counterparts (Bellini, 2003), it is apparent that the field must take action to galvanize the field toward addressing the problem.

Definition of Cultural Competency

Cultural competence is a term that has multiple meanings. Many practitioners may fail to understand the nuances of the unique skill set that pertains to developing multicultural counseling competence. Cultural competence begins within the vocational rehabilitation practitioner. Responsive, reflective service provision is a prerequisite for culturally competent service provision. Pedersen (2000) states," that it is difficult to know the culture of others until and unless one has an awareness of one's own culturally learned assumptions as they control one's life" (p. ix). Thus, a comprehensive understanding of the

dynamics of culturally competent service provision begins with a thoughtful consideration of who we are as counselors, our cultural frameworks and assumptions, as well as our own cultural identity.

Culture influences how disability is perceived and defined (Cuellar & Arnold, 1986; Schaller, Parker & Garcia, 1998; Smart & Smart, 1992; Rubin, Pusch, Fogarty & McGinn, 1995). For the purposes of this dissertation, the term culture incorporates the dimensions of attitude, belief, values, experience, and complex identities that influence an individual's life. Everyone has a cultural framework whether they are Caucasian/European American, African American, Asian American, Native American, or Hispanic. Even these ethnic demographics are overly broad categories that do not acknowledge inter-group differences, such as whether Asian American refers to both someone of Korean descent and Vietnamese ancestry, and whether Hispanic refers to both Cuban American and Mexican American groups. Understanding these inter-group differences also contributes to the foundation of cultural knowledge. In fact, it is impossible to discuss cultural competency without understanding just how complicated the concept of culture truly is. Pederson (2000) states," We become more aware of our cultural identity through contact with persons from other cultures who are different from ourselves, and we see ourselves in contrast. Cultural identity is complicated" (p. 61).

Understanding inter-group, as well as intra-group, differences requires discussion of assimilation, enculturation, acculturation, and racial bias because the development of cultural competency is tied to understanding the application of these terms in the literature. The degree to which individuals embody their own cultural ideals and beliefs is referred to

as enculturation (Smart & Smart, 1993). Interaction between ethnic minority individuals and the majority culture may lead to a process of acculturation, wherein individuals adapt or modify traits as a result of contact with the other group. Many researchers have reported that both enculturation and acculturation affect the vocational rehabilitation process (Chan, Lam, Wong, Leung & Fang, 1986; Cuellar & Arnold, 1986; Smart & Smart 1992). Caucasian counselors, who are unaware of their own cultural beliefs, very likely will impose their biases and judgments on the counseling relationship (Rosenthal, 2004; Rosenthal & Kosciulek 1996; Rosenthal, Wong, Moore-Blalock & Delambo 2004) and fail to consider the many unique aspects of culturally and linguistically diverse groups.

Rehabilitation counselors must understand intra-group differences and practice what Stebnicki, Rubin, Rollins & Turner (1999) refer to as "cognitive flexibility". Cognitive flexibility allows counselors to understand that culture does not define a person, but rather is an aspect of their being that is uniquely personal and individuated in interpretation and expression. When rehabilitation counselors fail to consider the degree to which an individual experiences intra-group differences, they may be stereotyping their clients by using overly broad generalizations (Stebnicki et al, 1999). Clarification of this point is essential to emphasize that culture and ethnicity impact rehabilitation counseling outcome and that cognitive flexibility is a prerequisite for culturally competent rehabilitation practice.

Rehabilitation counselors have often been described in the literature as operating from a culturally encapsulated perspective (D'Andrea & Daniels, 1991; Rubin, Pusch, Fogarty & McGinn, 1995; Todisco & Salomone, 1991; Watson, 1986; Wilson, Harley,

McCormick, Jolivette & Jackson, 2001). This cultural isolation creates an inability to adopt alternative perspectives or viewpoints, is the antithesis of cognitive flexibility, and thwarts development of empathetic and reflective counseling skills. Because a majority of rehabilitation counselors are of Western European origin, this cultural encapsulation is also referred to in the literature as a Eurocentric perspective (Okocha, 1994; Herbert & Cheatham, 1986; Todisco & Salomone, 1991)

When counselors operate from a Eurocentric perspective, they fail to consider the depth and breadth of unique cultural experiences that a consumer may possess. This lack of cultural sensitivity appears to be a contributing factor in ethnic minority persons with disabilities being disproportionately rejected for vocational rehabilitation services (Rubin et al. 1995). By breaking out of their encapsulated perspectives, rehabilitation counselors become more culturally competent and demonstrate a more pluralistic orientation in using their counseling techniques (Dodd, Nelson, Ostwald & Fischer; 1991; Riggar, Eckert, & Crimando, 1993). Cultural encapsulation and euro centrism dominate the vocational rehabilitation system and highlight the need for cultural competency and training designed to ameliorate these biased perspectives.

Historical Framework of Cultural Competency

The field of psychology, especially counseling psychology, has been most proactive among the counseling professions in defining terms and developing policy statements regarding cultural competency. Sue, Arredondo and Davis (1992) define the concept of cultural competency across three dimensions: a) beliefs and attitudes, b) knowledge, and c) skills, and develops a matrix of characteristics as well as dimensions thus creating nine

competency areas which they articulate as critical functions of cultural competency. Sodowsky (1994) defines high cultural competency as "a regard for client-counselor cultural differences (and, possibly similarities) as important to the counseling process as case conceptualization, methods of resolution, counseling goals, and perceived counselor credibility" (p.137).

In 2002, The American Psychological Association approved policy guidelines that articulate cultural competence within the field of counseling psychology (American Psychological Association, 2002). The Office of Minority Health, has a definition on their website of cultural competency for professionals working in health care settings. It states, "Cultural and linguistic competence is a set of congruent behaviors, attitudes, and policies that come together in a system, agency, or among professionals that enables effective work in cross-cultural situations" (Office of Minority Health, 2000).

Defining Cultural Competency in Vocational Rehabilitation Counseling

Cultural competency is the demonstration of cultural awareness, wherein individuals exhibit cultural sensitivity and avoid cultural biases, as well as the skill to assess an individual's unique cultural background and formulate a vocational plan that is culturally relevant. In addition, counselors require exposure to cultural relationships that allow vocational rehabilitation professionals to engage in interactions with culturally and linguistically diverse individuals. This researcher used the APA policy guidelines as well as the definition from the Office of Minority Health to formulate a definition of cultural competency for vocational rehabilitation counseling. Cultural competency extends beyond mere proficiency or knowledge of cultural influences on the rehabilitation process. Beyond

a definition of cultural competency, it is important to consider how this construct is measured. Many instruments have been developed to measure this difficult construct. This study utilized the *Multicultural Counseling Inventory* developed by Dr. Gargi Sodowsky. This will be discussed in detail in Chapter 3 under Instrumentation.

Statement of the Problem

The national economy significantly under- employs individuals with disabilities. Individuals with disabilities who are also members of culturally and linguistically diverse groups may be doubly jeopardizing their successful rehabilitation if they experience bias within the vocational rehabilitation system. Consider current national employment rates from the US Census Bureau. In 2000, according to the American Community Survey (ACS) nationally 22.79 million individuals of working age had a disability. Of this total, only 8.7 million individuals were employed (US Census Bureau, 2000).

The organizational culture of the state vocational rehabilitation bureaucracy may be incompatible with the consumers it serves. CLD Consumers possess a multiplicity of different values, beliefs, and customs that reflect a wondrous tapestry of cultural diversity. These beliefs, values, attitudes, and experiences provide fertile potential to enhance and enrich the labor force. Unfortunately, the organizational culture of the vocational rehabilitation system has shown historically, through research on racial disparities and service inequities, that it is not responsive to this rich complexity of cultural influences.

The organizational culture of the state vocational rehabilitation system predominantly reflects the values of mainstream, majority, European American culture (Wilson, et al. 2001). These values of autonomy/independence, self interest/initiative may

unconsciously permeate the decision making of vocational rehabilitation professionals (Wilson et al. 2001). These values reflect an internal locus of control, a belief that the individual's own choices guide his or her employment decisions. They stand in direct counterpoint with a more inclusive, cooperative, external locus of control that may exist within the decision-making processes of culturally and linguistically diverse populations.

Different cultures may possess different value systems that influence their work-seeking behaviors (Middleton et al., 1996; Middleton et al. 2000). The influence of family, social systems and cultural traditions may substantially contribute to the decisions that culturally and linguistically diverse individuals with disabilities make with regard to their decision to seek employment (Schaller, Parker & Garcia, 1998). If vocational rehabilitation service professionals are going to be successful in providing services to culturally and linguistically diverse consumers, they must be responsive to the values, beliefs, and customs of culturally and linguistically diverse groups.

Purpose of this Study

The purpose of this dissertation is to explore whether counselor/client racial similarity is related to services provided and employment outcomes achieved. Research on client/counselor racial similarity will add information to the research base on the education and training of rehabilitation counselors. Information regarding counselor/consumer racial similarity may help to articulate whether CLD counselors are more effective with CLD consumers.

The State of California vocational rehabilitation system endeavors to create a dynamic and responsive service delivery system with highly trained and qualified

professional rehabilitation counselors. This desire to serve a culturally and linguistically diverse constituency stands in stark contrast to the research on service disparities and inequities within the national research base. Research has shown that state vocational rehabilitation systems have a problem with racism (Rosenthal, 2004; Rosenthal & Berven, 1999; Rosenthal & Kosciulek, 1996; Rosenthal, Wong, Moore-Blalock & Delambo, 2004; Wilson, 1996). Consumers from CLD backgrounds experience disparate rates of application for service (Wilson, Jackson & Doughty, 1999), receive disproportionately more maintenance related services (Wilson & Turner, 2002), and are closed without placement in competitive employment more frequently with reasons such as "unable to locate" or "failure to cooperate" (Wilson, 2005).

This research will focus a discerning lens on how the vocational rehabilitation counselor perceives and understands cultural competency. By marrying this perception with consumer outcomes, this research focuses on the influence of cultural competence on rehabilitation process and outcome. Consideration of client outcome in correlation to counselor competency will help researchers, rehabilitation educators and state vocational rehabilitation personnel managers to understand just how vital culture is to rehabilitation counseling.

Research Questions

Two research questions guided this study. The questions are:

1. Do clients who are served by counselors who are similar in ethnicity versus clients served by counselors dissimilar in ethnicity differ significantly in terms of service provision and employment outcome?

2. Is there a significant relationship between MCI total scores and/or MCI subscale scores of counselors and consumer service provision and employment outcomes?

Definition of Terms

Case Services. Case services can be any combination of goods and services, whether provided directly by VR or arranged through qualified vendors that are used to achieve the desired vocational goals of the customer. There are 26 case services identified in the RSA-911 Case Service Reporting Manual (2006), however, for the purpose of this study, only the following four case service variables were used:

1. *Job Search Assistance.* Job search assistance includes an array of services such as identifying job leads, contacting potential employers, resume preparation, and job interview coaching.
2. *Maintenance.* Maintenance services refer to monetary support for living expenses such as food, shelter, and clothing that are necessitated by the individuals' participation in the state-federal VR program.
3. *Rehabilitation Technology*. Rehabilitation technology refers to the systematic application of technologies, engineering methodologies, or scientific principles to meet the needs of, and address the barriers confronted by, individuals with disabilities in areas that include education, rehabilitation, employment, transportation, independent living and recreation. (Rehabilitation Services Administration Case Service Report, 2006, p.29).
4. *College Training*. Full or part time academic training above the high school level leading to a degree, a certificate or other recognized educational credential.

Competitive Employment. Competitive employment is defined as full or part-time work, earning minimum wage or above, in an integrated work setting without the need for ongoing job support (RSA, 2006). It is a dichotomous variable. For the purposes of this study, other outcome variables were considered as a means of providing a more descriptive understanding of case service impact and outcomes.

The additional outcome variables used in this study were:

Hourly Wage at Closure. (continuous variable) The individual's earned hourly wage at the time the case record is closed.

Weekly earnings at closure. (continuous variable) The individual's total earned income in a week from all sources before payroll deductions.

Consumer Demographics. There were 14 customer demographic variables collected on the consumer population. The following variables were utilized in this study:

Race and Ethnicity. There are 5 categories reported for Race (White, Black, American Indian or Alaskan Native, Asian, or Hawaiian/ Pacific Islander). There is 1 category reported for Ethnicity (Hispanic or Latino).

Age. (18-99; continuous data).

Level of Education at Time of Application (1= high school education with no diploma, 2= high school education with diploma, 3= special education certification, and 4= postsecondary education with no degree; categorical data).

Significant Disability. A individual is determined to have a significant disability if the following conditions are met: " a) physical or mental impairment that seriously limits one or more functional capacities (such as mobility, communication, self care, self direction, interpersonal skills, work tolerance, or work skills) in terms of an employment outcome. b) can be expected to require multiple vocational rehabilitation services over an extended period of time; and c) who has one or more physical or mental disabilities." (RSA, 2006, p. 45).

Primary Disability. "An individual's primary physical or metal impairment that causes or results in a substantial impediment to employment" (RSA-911 Case Service Reporting Manual, 2006, p.14).

RSA-911 Case Service Reporting Manual. The definitive reference manual used by all state-federal VR agencies that provides instructions, descriptions, and definitions for all of the elements that are included in the RSA-911 data file (RSA, 2006).

RSA-911 Data File. The Rehabilitation Service Administration database reporting system that includes customer demographic information, types of rehabilitation services, and case closure status compiled from all of the state-federal VR programs across the country.

CHAPTER TWO

REVIEW OF LITERATURE

The literature contains 11 quantitative and qualitative research studies that focus on cultural competency for vocational rehabilitation counselors. Training counselors to understand and be responsive to various cultural beliefs and values is an essential part of developing cultural competencies for rehabilitation counselors. This literature synthesis analyzes how the field of rehabilitation has developed the construct of cultural competence of practicing rehabilitation counselors, and it considers the implications of cultural competency on the practice of vocational rehabilitation through issues of service provision and development of rehabilitation education curricula to respond to multicultural service needs.

The literature describes the need for further research and additional studies on the cultural competencies for rehabilitation counselors, qualitative research to consider perspectives of culturally and linguistically diverse consumers, and further training for counselors on culturally competent service provision.

Statement of Problem

This chapter synthesizes research within the field of vocational rehabilitation and how rehabilitation counselors serve individuals with disabilities from culturally and linguistically diverse backgrounds. The manner in which counselors demonstrate culturally responsive counseling skills, awareness of the multiple dimensions of attitudes, beliefs,

experiences, and knowledge of cultural influences are integral to the practice of culturally competent vocational rehabilitation counseling. Public vocational rehabilitation programs have historically demonstrated poor employment outcomes and inequities in service provision to individuals with disabilities from culturally and linguistically diverse backgrounds (Alston & Mngadi, 1992). High rates of disability and unemployment among culturally and linguistically diverse populations, and lower quality of vocational rehabilitation services provided to culturally and linguistically diverse groups -- in the face of a legislative mandate to address rehabilitation counselor diversity-- form the backdrop for this literature synthesis on vocational rehabilitation counselor cultural competency.

Federal Policy Initiative

Because of the disparities in rehabilitation outcomes, professionals in the field took up the call for policy and practice that would address these differences. On May 6-7, 1992 at Jackson State University, The National Council on Disability convened a conference entitled, *Addressing the Unique Needs of Minorities with Disabilities: Setting an Agenda for the Future* (Wright & Leung, 1993). The conference resulted in a series of findings and policy recommendations, as well as numerous papers on topics such as the health, education, vocational rehabilitation, and employment of ethnic minority individuals with disabilities. The recommendations contained six specific areas of redress for the vocational rehabilitation system: a) federal policies should enable the provision of vocational rehabilitation services that are culturally appropriate, b) research is needed to determine effective models, services and resources, c) training for vocational rehabilitation personnel must include multicultural emphases, d) pre-service education programs must include

specific courses related to multicultural experiences, e) incentives should be provided for recruitment and education of underrepresented racial/ethnic populations, and f) increased numbers of tribally operated VR programs are needed to meet the growing needs of Native Americans (Wright & Leung, 1993).

The conference, and the commissioned papers that resulted from the conference, galvanized the concerns regarding disparities in service provision and provided the legislative impetus for change. In 1992, the Rehabilitation Services Administration (RSA) requested papers to be submitted on significant topics impacting the field of vocational rehabilitation. RSA convened the 19th Institute on Rehabilitation Issues (IRI) to provide direct input and assistance toward pending legislation. The 19th IRI contained a seminar on multicultural diversity and outlined significant concerns for the field. The IRI appears to have influenced rehabilitation legislation. Section 21 in the Rehabilitation Act of 1992 specifically addresses multicultural diversity. As a result, RSA formulated the Rehabilitation Cultural Diversity Initiative (RCDI) as a policy directive to address this challenge. Whether or not the 19th IRI specifically resulted in the creation of Section 21, the field was significantly concerned with the issue of cultural diversity and provided substantial input for legislators to consider in drafting the federal policy. See Table 2 for further information.

The 1992 Reauthorization of the Rehabilitation Act addressed many issues concerning provision of culturally sensitive vocational rehabilitation services (Middleton, Flowers & Zawaiza, 1996). Language regarding enhancing vocational rehabilitation counselors' sensitivity to cultural and racial differences, as well as insertion of the term

"qualified rehabilitation professional," was inserted into the Act. This demonstrates recognition that the field of vocational rehabilitation needed to expand its awareness not only of socio-cultural differences and nuances in service provision for the clients that they serve, but also acknowledges the importance of enhancing the professionalism and educational backgrounds of rehabilitation counselors (Middleton, Rollins, Sanderson, Leung, Harley, & Ebener, 2000).

Section 21, paragraph 4 specifically calls for recruitment of minority counselors in the field of rehabilitation counseling. This has direct implications for cultural competence because several studies consider the effect of counselor/client ethnic similarity on services and outcomes (Middleton et al., 1996). Debate has questioned whether CLD counselors would be more effective in serving CLD consumers, whether targeted recruitment of CLD counselors would ameliorate service disparities (Middleton et al., 1996; Middleton et al., 2000), or whether focusing on training and education of rehabilitation counselors would ameliorate inequities (Smart & Smart, 1992). Recruiting more minority counselors into the field of vocational rehabilitation may offer greater diversity in the counselor workforce as well as create more opportunities for vocational rehabilitation consumers to interact with counselors of similar ethnicity. The two research questions of this research are designed specifically to answer the question of whether ethnic similarity between counselor and consumer has a significant influence on service outcomes or whether demonstrating cultural competence regardless of ethnicity may be more predictive of successful outcome.

Table 2. Section 21 sections 1,3,4 the 1992 Reauthorization of the Rehabilitation Act

Section 1 Racial profile	The racial profile of America is rapidly changing. While the rate of increase for white Americans is 3.2 percent, the rate of increase for racial and ethnic minorities is much higher: 38.6 percent for Latinos, 14.6 percent for African-Americans, and 40.1 percent for Asian-Americans and other ethnic groups. By the year 2000, the Nation will have 260,000,000 people, one of every three of whom will be either African-American, Latino, or Asian-American.
Section 3 Inequitable treatment	Patterns of inequitable treatment of minorities have been documented in all major junctures of the vocational rehabilitation process. As compared to white Americans, a larger percentage of African-American applicants to the vocational rehabilitation system is denied acceptance. Of applicants accepted for service, a larger percentage of African-American cases is closed without being rehabilitated. Minorities are provided less training than their white counterparts. Consistently, less money is spent on minorities than on their white counterparts.
Section 4 Recruitment	Recruitment efforts within vocational rehabilitation at the level of pre-service training, continuing education, and in-service training must focus on bringing larger numbers of minorities into the profession in order to provide appropriate practitioner knowledge, role models, and sufficient manpower to address the clearly changing demography of vocational rehabilitation. (Rehabilitation Services Administration, 1993)

Despite the RCDI and the 1992 Amendments, traditional counseling strategies and methodologies are widely practiced today (Duarte & Rice, 1992). Duarte and Rice (1992) argue that by using different counseling strategies, advocacy, and outreach, systemic change that benefits ethnic minorities with disabilities will occur. Cultural competency requires counselors to recognize their own cultural backgrounds, as well as respond to the diverse cultural experience of their consumers. In addition, counselors must create greater cultural pluralism by facilitating the recruitment minority individuals into the field of rehabilitation counseling (Duarte & Rice, 1992). In this way, the rehabilitation counselor population reflects the demographics of the consumer population that it serves.

Purpose of Literature Review

This review of literature serves a dual purpose. First, it will critically analyze the research on cultural competency within the field of vocational rehabilitation counseling. Secondly, it will articulate the implications for research, practice, and rehabilitation education curricula in response to multicultural service needs providing the framework for a research study targeting practicing rehabilitation counselors and their consumers in a large Western state.

Literature Review Questions. In conducting this literature synthesis, three research questions guided the inquiry. The first question asked what are the cultural competencies that VR counselors possess/lack in providing services to CLD populations. The second question pertained to how effective are VR counselors in providing VR services to CLD individuals? And finally, the third question referred to what recommendations for continued research are suggested by the critical analysis of the extant literature?

Selection criteria. Selection criteria for the literature synthesis targeted quantitative or qualitative studies in which cultural competence and rehabilitation counselor attributes were mentioned either in the topic, title, abstract or findings of the research. The literature synthesis was divided into two categories: first were empirical research articles that explored the domains of cultural competency for rehabilitation counselors; secondly were those articles that discussed the significance of cultural competency in the research, practice, and literature base but were not empirically grounded. This second category was included to support the findings of the empirical literature and provide additional context

regarding the evolution of cultural competence as a counseling construct within the field of rehabilitation counseling.

The articles and studies included demonstrate the spectrum of available literature. Only 11 studies reviewed demonstrated rigorous research approaches that also conformed to the selection criteria. There was discussion within the research regarding concerns about prior research characteristics and the sample sizes influencing the statistical outcomes (Capella, 2002). Therefore, it was difficult to decide whether to include or dismiss studies because of these concerns. The researcher decided to focus this synthesis on the 11 studies specific to cultural competence within the field of vocational rehabilitation and utilize the additional articles as appropriate in the discussion and conclusion sections so as not to omit any relevant conceptual information and to demonstrate the full spectrum of academic research on the subject.

Search procedures. Using online searches, bibliographic cross-referencing, and consultation with researchers in the field, and hand searches, a substantive and comprehensive body of literature was obtained. Research on cultural competency emerged from 1992 amendments. Therefore, as my first criterion for selection, I limited the chronology of research to the past 20 years to consider articles published both before and after the 1992 Reauthorization of the Rehabilitation Act which included Section 21, referred to as the Rehabilitation Counselor Diversity Initiative. The second criterion for inclusion in the literature review was that articles be limited to addressing cultural competency among pre-service or practicing rehabilitation counselors. A third and final

criterion was that articles needed to be published in peer reviewed rehabilitation journals or dissertation abstracts.

I started my search procedures by utilizing the online database of the Web of Science and Dissertation Abstracts International. The search parameters were delimited to the general topic search format using cultur* diversity or competence and rehabilitation counsel*. This resulted in four dissertations and three articles, but a cross-reference review using Bellini's (2001) article increased the total to 40.

The second procedure utilized to gather research was bibliographic cross-referencing. Bibliographic cross-referencing resulted in an additional 123 related articles. In reviewing the abstracts of these 123 articles, 45 new articles were found that met the search criteria. Bibliographic cross referencing helped to ensure information was representative of the field and also helped to ascertain what, if any, information existed beyond the search methodology employed. Through bibliographic cross-referencing, I identified six researchers in the field of vocational rehabilitation who published prominently on topics related to cultural competence. Criterion for selection of such researchers was that they had published three or more articles on topics related to cultural competence.

I contacted each of the five researchers personally: Keith Wilson from Pennsylvania State University, Tennyson Wright and William G. Emener from the University of Southern Florida, Julie Smart of Idaho State University, and David Rosenthal from the University of Wisconsin-Madison. This resulted in two additional articles.

The final search parameter was a hand search of 10 volumes of two of the major practitioner journals in the field: *Rehabilitation Education* and *Journal of Applied Rehabilitation Counseling*. Articles from these journals are not well represented in major databases such as PsychInfo. This procedure resulted in eight additional articles being identified.

Types of Research Studies

The literature contains 11 studies on the relationship of vocational rehabilitation cultural competency to rehabilitation process and outcome. An alpha of .05 was found to be used for all statistical tests. These studies can be categorized into: (a) studies that focus on domains of cultural competency across ethnicities of vocational rehabilitation counselors, (b) studies that explore racial attitudes correlated to competence and service outcomes, (c) studies that explore effect of counselor competence on the vocational rehabilitation process or client outcome, and (d) studies that explore service disparities among culturally and linguistically diverse populations. Each of these four categories of research contributes unique findings to the literature base on cultural competency for vocational rehabilitation counselors.

Domains of Cultural Competency Studies. Six studies explored how rehabilitation professionals rated themselves on providing culturally responsive services (Bellini 2002; Granello & Wheaton 1998; Granello, Wheaton & Miranda 1998; Kirksey-Augustin 2001; Wheaton & Granello 1998; Whitehead 2003). Three studies considered how counselors reported their own competence using race/ethnicity and other demographic variables of the

counselor as the independent variable and competency ratings on the four subscales of the MCI (Knowledge, Awareness, Skills, and Relationships) as the dependent variables (Bellini 2002; Granello & Wheaton 1998; Granello, Wheaton & Miranda, 1998). Each of these studies investigated correlates of cultural competency in a slightly different manner and the findings indicate a complex interaction of variables that influence cultural competency.

Bellini (2002) collapsed the ethnicities of his participants due to small sample size of CLD counselors so that he had two groups of counselors that he referred to as White (n=147) and minority status (n=27). By conducting a hierarchical multiple regression analysis he considered three sets of predictor variables based on presumed causal priority. The order of priority of these variables was: (a) age, gender, education, and years of experience, (b) multicultural experience, race, multicultural caseload, and (c) multicultural training, multicultural graduate classes, multicultural workshops (Bellini, 2002).

For the first set of variables only gender contributed significantly to a higher MCI score with women evidencing higher competencies than men. For the second set of variables counselor race was found to contribute significant variation in total MCI scores with counselors who reported ethnic minority status evidencing higher competencies overall. Multicultural caseloads did not contribute significant variation in MCI scores. Finally, with regard to the training and multicultural education, counselors who reported taking a graduate class in multicultural counseling and counselors who participated in more multicultural workshops reported higher cultural competencies (Bellini, 2002).

The results of Bellini's (2002) study replicate the findings of previous research (Pope-Davis & Ottavi 1994, Wheaton & Granello 1998). The finding was that counselor race explained the largest percentage of variation in counselor competency. Multicultural graduate classes and participation in multicultural workshops also significantly enhance cultural competency. This creates compelling arguments for further empirical research linking counselor's self-reported competency and vocational rehabilitation outcomes (Bellini, 2002). A related research question is how do vocational rehabilitation counselors define or apply the term cultural competency in their day-to-day counseling activities?

To answer this question Granello, Wheaton and Miranda (1998) conducted three focus groups of approximately six vocational rehabilitation counselors each to examine the construct of cultural competence from a practitioner's perspective. Each of the three focus groups was comprised of members of different cultural backgrounds (African American, European American, and mixed). The argument for this research was compelling in that "quantitative research can identify the strengths that counselors perceive they have in each of these areas, but it does not give adequate opportunity for practitioners to struggle with the specifics of the competencies and explore the meaning these competencies have in their personal and professional lives" (p.239). By examining these personal definitions of competency, researchers found that counselors viewed general counseling skills as sufficient and were resistant to considering additional multicultural awareness and knowledge. They also determined that application of the construct varied depending on the cultural and linguistic background of the counselor (Granello, Wheaton & Miranda, 1998).

The findings of this qualitative research indicated that practicing counselors had very different reactions and interpretations of cultural competence than the academic researchers expected when they developed instruments to quantify competence. In addition, responses to counseling competencies varied according to the race of the participant (Granello, Wheaton, & Miranda, 1998). Researchers found that with regard to the domain of MCI cultural Skills, counselors emphasized that they believed that basic counseling skills were probably sufficient for all cultures. However, they welcomed training in this area. In discussing the domain of MCI cultural Knowledge, the African American and mixed groups were both insistent that knowledge leads to stereotyping; many questioned the utility of learning multicultural knowledge. Finally, counselors of all races were somewhat resistant to discussing multicultural awareness (Granello, Wheaton & Miranda, 1998).

These findings raise interesting questions pertaining to training and how training might mitigate the entrenched cultural beliefs and enhance cultural competence. Wheaton and Granello (1998) studied how training and experience might enhance cultural competence. They used a sample of vocational rehabilitation counselors (N=180) to consider whether a trend analysis would demonstrate that training had a positive effect on the four subscales of the MCI (Skills, Awareness, Knowledge, Relationships) and full-scale score. Results indicated that training contributed to an increase in cultural competency Skills, Knowledge, Awareness and total MCI score. The Relationship scores were more highly correlated with experience than training (Wheaton & Granello, 1998). Ottavi, Pope-Davis and Dings (1994), Ottavi and Pope-Davis (1994), and Pope-Davis & Ottavi (1994)

also report similar findings. These studies lend credence to the assertion that training would enhance a counselor's knowledge of cultural and linguistic diversity and create greater awareness of inherent bias, and that counselors who had more experience working with culturally and linguistically diverse clients would have higher Relationship scores (Wheaton & Granello, 1998). As previously mentioned, however, Bellini (2002) found that while training enhanced cultural competence, having a greater percentage of culturally and linguistically diverse consumers in a multicultural caseload did not. So, could being a counselor with a culturally and linguistically diverse background confer cultural competence?

Granello and Wheaton (1998) studied this question by considering the cultural competence of two different groups of counselors: African American counselors (n=19) and European American counselors (n=154). Using the same sample as previously reported, they divided the groups by ethnicity to determine if ethnicity affected overall cultural competence. Results reported statistically significant differences in levels of cultural competency between ethnicities of vocational rehabilitation counselors on the various subscales of the MCI. All counselors perceived themselves as culturally competent, particularly in the area of Multicultural Skills. African American counselors, however, were identified as being more cultural competent than European American counselors on the scales of Multicultural Relationship and Awareness. There were no significant differences between the groups on the subscales of Skills or Knowledge (Granello & Wheaton, 1998).

Kirksey-Augustin (2001) studied vocational rehabilitation counselors in the private sector (N=211) and their perceptions of cultural competence. In contrast to Granello and Wheaton (1998), she found no difference on the MCI subscales of competence between counselors of different ethnicities. She did note, however, that those counselors whose caseloads included over 45% CLD individuals had higher competencies in Multicultural Awareness, Relationship, and MCI total score in contrast to Bellini (2002). While she did not find any overall significance in other demographic variables such as age or education, like Bellini (2002), her results did indicate that females had slightly higher Knowledge scores than males.

Whitehead (2003) found similar results with regards to gender. In a study of African American and Caucasian rehabilitation counselors (N=148) working with African American consumers with severe mental illness, there appeared to be no significant difference in the way African American and Caucasian counselors provided services across racial/ethnic groups. Being female was, however, significantly related to multicultural knowledge. Gender influenced only one domain of competency, but like Kirksey-Augustin (2001) and Bellini (2002) it had a demonstrable effect on cultural competency.

While Granello and Wheaton (1998) found that Multicultural Relationship was correlated with experience, Whitehead (2003) found that Multicultural Awareness was correlated with experience. Unlike both Wheaton and Granello (1998) and Bellini (2002), Whitehead did not find that training was a significant predictor of any type of cultural competence. The most significant aspect of this study was the finding that attitudes of African American and Caucasian counselors toward African American consumers varied

(Whitehead, 2003). This leads to the consideration of those studies that explore the effect of counselor racial attitudes on cultural competency.

Racial Attitude Studies. Racial attitudes have not only been discussed in the context of multicultural counseling, but several researchers have proposed that they are directly related to cultural competency (Ottavi, Pope-Davis, 1994; Ottavi, Pope-Davis & Dings; 1994; Pope-Davis & Ottavi, 1994). Rosenthal (2004) specifically targets enhancing counselor awareness of the influence that race may have on their perceptions and subsequent decisions. Additional research on client race and clinical judgment- while not specifically relating it to counselor competency-- shows conflicting results of the influence of racial bias (Rosenthal & Berven, 1999; Rosenthal & Kosciulek,1996; Rosenthal, Wong, Blalock & Delambo 2004). Three of the empirical studies reviewed considered cultural competency in relation to racial attitude–Blalock (2005), Cumming-McCann and Accordino (2005), and Whitehead (2003). As Whitehead (2003) was discussed in the previous section, findings from the other two studies are presented here. These studies further demonstrate the complex relationship between racial attitudes and cultural competency.

Blalock (2005) examined the effect of client race on the clinical judgment of pre-service vocational rehabilitation counselor trainees. In this study (N=156), regression analysis was used to examine empathy, ego development, and social dominance orientation were related to cultural competency (Blalock, 2005). Results failed to substantiate this hypothesis. No significant relationship between client race and the clinical judgment of European American vocational rehabilitation counselor trainees was found (Blalock, 2005).

Blalock's findings (2005), however, present contradictory findings to the research of Cumming-McCann and Accordino (2005).

Cumming-McCann and Accordino (2005) investigated whether rehabilitation counselor characteristics and racial attitudes correlated with their cultural competencies. In the study of Caucasian practicing rehabilitation counselors (N=115), researchers hypothesized that racial attitude would significantly predict cultural competence beyond other variables collected such as education, caseload, multicultural experiences, and multicultural training. Hierarchical regression analysis revealed that racial attitudes explained variability in overall MCI Competence, as well as three of the four subscales (Awareness, Relationships, and Skills). A surprising discovery was the result that a counselor's multicultural experiences had an inverse relationship with the MCI Relationship subscale. Additional results revealed an inverse relationship between percentage of culturally and linguistically diverse consumers on the caseload and a counselor's Relationship competence subscale (Cumming-McCann & Accordino, 2005). This result contradicts Bellini (2002) in which he indicated experience was a significant contributor to the Relationship subscale of the MCI. These results are discussed further in the conclusion and implication section.

Competence and Client Outcome Studies. Service equity in vocational rehabilitation for culturally and linguistically diverse groups is the most appropriate context for evaluating the role of counselor-client similarity and counselor cultural competency in the achievement of vocational rehabilitation outcomes (Bellini, 2003). While extensive research has looked at service disparities and outcomes (Feist-Price, 1995; Wheaton, Finch,

Wilson & Granello, 1997; Wheaton, Wilson and Brown, 1996), only two studies (Bellini, 2003; Matrone & Leahy, 2005) explored counselor competence as it relates to client outcomes.

Bellini's (2003) study used a sample of 155 vocational rehabilitation counselors and explored the effect of their self-reported cultural competencies on process and outcome variables of 49,118 consumers. The consumer pool was selected based on four criteria: (a) applied for service between January 1,1998 through September 30, 2000, (b) closed after initiation of Individualized Plan for Employment, (c) recorded as being European American, African American, or Hispanic/Latino, and (d) served by counselors in the counselor sample (Bellini, 2003).

Results of ANOVA analyses indicated that there were statistically significant main effects of counselor race and client race rehabilitation rate, training rate, and service cost rate. There were also significant effects for each of the independent variables (client race and counselor race for the two-way interaction of counselor race, and client race for the two-way interaction of counselor race and MCI total score, and for the three-way interaction of counselor race, client race, and counselor MCI score) on rehabilitation rate and vocational training rate (Bellini, 2003).

While these results seem to provide evidence that there are significant effects of counselor and client race on employment outcomes, closer inspection of the results show complex effects that defy simple explanation. Bellini's study indicates that while European American counselors and clients had higher rehabilitation rates than other groups, African

American clients served by counselors other than European American had the lowest rehabilitation rate. Hispanic/Latino clients had approximately equivalent rehabilitation rates regardless of ethnicity of the counselor. Additionally, the study reported that Hispanic/Latino clients were provided vocational training services at higher rates than European American clients and that average service costs were higher for African American and Hispanic/Latino clients than for European American clients. Despite higher service costs, African American consumers had lower rehabilitation rates than other groups (Bellini, 2003). Given that the literature shows that culturally and linguistically diverse individuals experience higher rates of disability (Wright, 1986) and that type of disability influences service provision (Morgan, Guy, Lee, & Cellini, 1986), it was interesting to note that Bellini (2003) did not control for the influence of disability or consider it as a mitigating factor. It is evident to this researcher that severity of disability can be a significant contributing factor in successful VR outcomes.

There are other factors that prior research has shown influence VR outcomes, such as client education level, age, particular services provided, and overall unemployment rates (Bolton, Bellini & Brookings, 2000). Inclusion of additional predictor variables such as these could result in stronger prediction of VR outcomes (Bellini, 2003). Bellini (2003) used only a small set of variables, which limits the applicability of his research. Therefore, Bellini (2003) concludes that client race, counselor race, and counselor multicultural competency are not highly influential determinants of rehabilitation outcomes, but they do have an impact.

In contrast to Bellini (2003), Matrone and Leahy (2005) found that cultural competency does not have an impact on client outcomes. Matrone and Leahy (2005) used hierarchical linear modeling (HLM) in a study of 118 rehabilitation counselors to examine employment outcomes in relation to cultural competencies of rehabilitation counselors. Like Bellini (2003), they administered the MCI but the client sample came from the 2002 RSA 911 database for the public agency. It consisted of 5,669 consumers served by the 118 counselors in the sample and closed between October 1, 2001 and September 30, 2002 following implementation of the Individualized Plan for Employment.

Matrone and Leahy's (2005) explanation of the HLM approach is compelling. HLM allows for simultaneous investigation of the univariate relationships among variables in both client and counselor data (Matrone & Leahy, 2005). This analysis appears to directly address the limitation encountered by Bellini (2003); he was unable to account for the influence of what he termed predictor variables on outcomes. Use of HLM analysis was critical in studying counseling competencies because it enabled closer investigation of those variables associated with client outcomes (Matrone & Leahy, 2005).

Similar to previous research (Bellini, 2002; Bellini, 2003; Cumming-McCann & Accordino, 2005; Granello & Wheaton, 1998; Kirksey-Augustin, 2001; Wheaton and Granello, 1998), Matrone and Leahy (2005) also used the MCI as the instrument to measure cultural competency. Some of the variables analyzed were counselor cultural competencies, counselor characteristics and multicultural competencies, cultural competency and client outcomes, client race and counselor race, client's Social Security

benefits, and disability. Like Bellini (2003), the results show differential effects (Matrone & Leahy, 2005).

With regard to counselor cultural competencies, Matrone & Leahy (2005) found that the highest scores were on the MCI subscales of Skills and Relationship. These results are similar to Wheaton and Granello (1998) and Granello and Wheaton (1998). The lowest scores were on the Awareness dimension (Matrone & Leahy, 2005). Results also found that counselors with more than one year's experience, but less than eight years experience, had significantly higher scores on the Awareness competency subscale. Counselors who reported that they were eligible for CRC certification demonstrated higher scores on the Awareness and Knowledge dimensions of the MCI. Results showed no significance for overall counselor competency and client outcomes. Similar to Bellini (2002) counselor race was significant in explaining outcomes with non-Caucasian clients (Matrone & Leahy, 2005).

The final two client variables that Matrone and Leahy (2005) investigated were Social Security benefits and disability. Results indicated that a non-Caucasian client receiving Social Security benefits and working with a non-Caucasian counselor was more likely to have a successful outcome than a Caucasian consumer receiving benefits and working with counselor of any race. Matrone and Leahy (2005) also found that the probability for successful outcome for a non-Caucasian consumer regardless of disability – other than sensory-- is less than the probability for successful outcome for Caucasian consumers. Results support the conclusion that the most significant variables influencing

client outcomes are located at the client level and not at the counselor level (Bellini, 2003; Matrone & Leahy, 2005).

Client variables demonstrate significant impact on successful outcomes. Yet before these variables can be considered, one must consider what the findings of the final empirical study have to contribute to the literature. If client variables significantly influence the vocational rehabilitation process, one must return to the earlier discussion of service disparities and ask whether these service disparities still exist in the provision of vocational rehabilitation services.

Study of Service Disparity and Cultural Competence. Capella (2002) asked whether differences still exist for culturally and linguistically diverse individuals, as well as women, in terms of acceptance rates, employment outcomes, and quality of outcome in the state-federal vocational rehabilitation system. Using the RSA 911 database for fiscal year 1997, three random samples of 10,000 people were drawn from the larger database (N=523,047) to fit three models for separate regression analyses. These models investigated potential differences in acceptance rates, differences in employment outcomes, and differences in quality of outcome respectively (Capella, 2002).

Acceptance rate, employment outcome, and quality of outcome all had variables at the consumer level that demonstrated a significant result. For acceptance rates, race was found to influence whether a consumer was accepted for vocational rehabilitation services. Specifically, European American applicants were 1.5 times more likely to be accepted for services than African American applicants when all other client variables were equal (age,

education level, severity of disability). Over 50% of African American and Native American applicants were not accepted for services; this unacceptance rate is higher than any other ethnicity (Capella, 2002).

For employment outcomes, all client variables --except gender-- influenced whether a person received vocational rehabilitation services had a successful outcome. The quality of outcome was influenced by client gender, age, education, and severity of disability. Race influenced quality of outcomes for Hispanic consumers with results favoring Hispanic consumers when compared to European Americans although the author indicates that this finding should be interpreted with caution (Capella, 2002).

While Capella (2002) did not specifically investigate cultural competence, her results demonstrated the need to increase cultural competencies among vocational rehabilitation counselors. Vocational rehabilitation practitioners must be culturally aware as they deal with each individual client (Capella, 2002). Vocational rehabilitation counselors must acknowledge that competence first begins with an examination of personal assumptions and beliefs, and then extends to culturally responsive and ethical practice. This reaffirms the need for ethical guidelines in the Code of Professional Ethics for Rehabilitation Counselors regarding providing service to culturally and linguistically diverse clients (Capella, 2002; Middleton et al., 2000). By acknowledging the importance of cultural competency, the rehabilitation counseling field must take action to ensure professionals are actually providing culturally competent services to all consumers (Capella, 2002).

Discussion of Literature Review Findings

Findings and Limitations

These 11 empirical studies contribute significant information to our understanding of cultural competency of practicing rehabilitation counselors. Several themes in the literature warrant consideration in terms of limitations as well as implications for practice and future research. These three themes are: (a) the need to establish a stronger empirical foundation of research on cultural competence within vocational rehabilitation, (b) identifying effective training and experiential modalities within rehabilitation education, and (c) the need for qualitative research on consumer perspectives of the vocational rehabilitation system.

Empirical Research on Cultural Competence. Bellini (2002) argues for the need to establish an empirical basis for translating cultural competence into outcomes. This is particularly important because of the paucity of research on cultural competence within the field of vocational rehabilitation. Research has been bound by the limitation of relatively small sample sizes of CLD counselors. The reliance on self-report to measure cultural competency may limit valid generalization of the findings. And the collapsed racial categories within empirical research on cultural competence offer limited insight into specific cultural issues and beliefs that may influence the construct.

Only 11 empirical studies have been conducted so far on cultural competency in the field of vocational rehabilitation, and one of those studies did not research cultural competency specifically, but only suggested service disparities could be improved by

greater cultural competency of practicing rehabilitation professionals. Does higher cultural competency translate into more successful outcomes for culturally and linguistically diverse consumers? How can we extrapolate the influence of cultural competency on the vocational rehabilitation process when it is so intertwined with other counselor and client variables? Bellini (2002) states that confirmation of the empirical relationship between cultural competency and valued rehabilitation outcomes would advance our understanding of the construct.

Present research substantiates that counselor cultural competency is not applied in practice as it was intended to be through research. Granello et al. (1998) conducted the only qualitative study on cultural competence. Results raise questions of congruence between perceptions of professional counselor educators and practicing rehabilitation counselors (Granello et al. 1998). Counselors interpreted or justified their responses in ways that diffused the importance of cultural and linguistic diversity. It is possible that the small sample size of this study limits the transferability of this finding.

Sample size was cited as a limitation in all but one of the empirical studies. Small groups of counselors led to numerous research decisions that potentially limited and possibly compromised the data. Researchers made decisions to collapse racial categories of counselors into Caucasian and non-Caucasian, or to proceed with very small samples of culturally and linguistically diverse counselors. These decisions limit not only the ability to generalize results, but also dilute the ability to consider cultural and linguistic differences and their influence on results.

The ability to obtain significant results may also have been compromised by the use of self-report measures. While indicating that client variables are a significant contributing factor to successful outcomes (Bellini, 2003; Matrone & Leahy, 2005), researchers stipulate that self-report measures such as the MCI might not yield the most accurate demonstration of how cultural competence of vocational rehabilitation professionals interacts with client variables. Counselors may report perceived rather than actual behavior because of the use of a self-report measure (Bellini 2002; Cumming-McCann & Accordino, 2005; Granello & Wheaton, 1998; Kirksey, 2001; Matrone & Leahy, 2005). Several studies did employ the use of the Marlowe Crowne Social Desirability Scale (Granello & Wheaton, 1998; Wheaton & Granello, 1998) to mitigate this influence. Self-report measures, such as the MCI, did therefore provide insight into how practicing counselors conceptualized the separate domains of competence.

Further study of the domains of cultural competency, Knowledge, Skill, Awareness, and Relationship, will help to clarify that these domains represent critical aspects of culturally responsive service delivery. Research documenting the significance of cultural competence in vocational rehabilitation is in its infancy. Each domain must be viewed with equal importance. Vocational rehabilitation counselors can not have Knowledge without Awareness, or Skill without Relationship. Promoting cultural knowledge and meaningful experiential opportunities is the purview of rehabilitation education and training programs. Training culturally competent counselors should be a priority of rehabilitation education programs, so that they are more than adequately prepared for the diversity they will experience in the workforce.

Rehabilitation Education and Training. Rehabilitation education and training programs have the potential to substantially impact professional vocational rehabilitation counselors in the execution of culturally competent service provision. Granello and Wheaton (1998) and Wheaton and Granello (1998) shows a distinction between experience and training in that research shows the efficacy of training while Granello, Wheaton and Miranda, (1998) demonstrate a higher premium on experience. I believe that there is a need to consider the significance that both training and experience have on culturally competent service provision.

It is important to consider how training and experience both contribute to developing and maintaining culturally and linguistically responsive rehabilitation counselors. Matrone and Leahy (2005) found lower cultural competence for counselors with less than one year experience and with greater than eight years experience. This finding suggests that without ongoing training and periodic continuing education, counselors that have been working for shorter or longer periods of time may not be equipped to practice culturally responsive counseling methods. While the qualified educational standard in the field of vocational rehabilitation counseling is a master's degree in the field, ongoing training, periodic staff development and enrichment as well as continuing education is vital to ensure a counseling workforce that is responsive and adaptive the needs of the consumers that they will serve.

Counselors may be resistant to learning culturally responsive counseling techniques. In fact, counselors questioned the utility of learning multicultural knowledge for fear that it would increase stereotyping and bias (Granello, Wheaton & Miranda 1998).

Continued emphasis on a culturally diverse curriculum can help prepare rehabilitation professionals for the increasingly large numbers of culturally and linguistically diverse consumers that are expected to enter the vocational rehabilitation system in the future (Smart & Smart, 1997). D'Andrea and Daniels (1991) state, "counselors will be challenged to examine alternate theoretical paradigms and develop a host of new skills with which they might better serve the developmental needs of a diverse citizenry or experience a substantial diminishment in public support for their professional services" (p. 84). Kirksey-Augustin (2001) pragmatically mentions," multiculturalism can no longer be viewed as an act of tolerance, it is more appropriately related to being prepared for the ever-changing demographic needs of the country…. it lends itself to better business practices and the ability to meet the needs of those being served" (p. 135). Experience and training can lead to enhanced cultural competencies if counselor accreditation and licensure organizations emphasized the importance of culturally responsive services.

There are two accreditation bodies that certify rehabilitation counselor education programs. The first is the Council for Accreditation of Counseling and Related Educational Programs (CACREP). This accreditation body identifies minimal criteria for the preparation of professional counselors that includes curricular experiences and demonstrated knowledge in eight common core areas one of which is social and cultural diversity (Council for Accreditation of Counseling and Related Educational Programs , 2001). The second accreditation body, Council on Rehabilitation Education (CORE), also articulates specific accreditation standards as they pertain to socio-cultural diversity and counselor knowledge domains. They espouse a curriculum that is rich in experiential and

curricular knowledge. Thus graduates of CACREP and CORE accredited programs are obtaining significant pre-service exposure to multicultural diversity curricula. Both accreditation bodies are holding rehabilitation education programs accountable for the delivery of multicultural curriculum. Are their graduates held accountable for this knowledge in the certification examination?

The recognized standard for certification of rehabilitation counselors is the Certified Rehabilitation Counselor (CRC) exam. This exam contains 300 questions across 12 knowledge domains and the number of questions within each knowledge domains is quantified by a mean importance rating that determines how many questions will be asked at a minimum pertaining to that specific knowledge domain. The most recent revision to the test (2003) contains only two questions out of 300 pertaining to multicultural counseling issues (Commission on Rehabilitation Counselor Certification, 2003) .

While it is evident that much work has been undertaken to include pre-service education on multicultural issues, certification standards are sadly lacking in accountability in this area. Once these skills are embedded into a comprehensive repertoire of training, counselors then need to be held accountable for practice and exercising culturally appropriate counseling practices that incorporate this multicultural perspective (McGinn, Flowers & Rubin, 1994). Obtaining these skills and maintaining attention to their application is therefore not only a critical aspect of counselor training programs, but also an ethical responsibility of certification and accreditation boards. Additionally there is no requirement for ongoing education on cultural competency. Clearly accreditation boards

must revisit the issue of cultural competency and recognize the discrepancies in service provision toward ethnically and culturally diverse consumers.

Unless there are measures to redress the issue of disparate service provision with adequate professional development and performance evaluation standards in cultural competency, the problem of inequitable service delivery and cultural incompetence will likely persist. Matrone and Leahy (2005) argue that, "multi-cultural competence is an evolving, complex construct …. A vital component missing from this investigation is an understanding of how the client experiences cultural competence" (p. 242). Incorporating qualitative survey information from ethnically and culturally diverse consumers regarding their experience with vocational rehabilitation would be invaluable to research.

Consumer Perspectives. The Rehabilitation Cultural Diversity Initiative provided impetus for research in the field of multiculturalism and inequitable rehabilitation service delivery to CLD consumers. To date, no study has considered the construct of cultural competence from the consumer perspective. Qualitative studies that considered consumer perspectives would contribute needed information to research on cultural competence. Whitehead (2003) indicates, "Qualitative research would provide breadth and depth of knowledge and understandings about these areas of research" (p.161). Cultural competence can be quantified through self-report instruments and racial attitudes can be deduced from various scales. To truly understand the dynamics of the counseling process, however, research must investigate vocational rehabilitation service outcomes for CLD consumers from their perspective. Qualitative consumer research is needed. Focus groups, consumer

satisfaction data, or direct observation would provide vital information into the didactic nature of such a fluid and amorphous construct as cultural competency.

Conclusion of Literature Review

Summary

The 11 empirical studies on cultural competence for vocational rehabilitation counselors begin to provide a preliminary understanding regarding the complex relationship that cultural competence has with successful employment outcomes. Cultural competence is not easy to extrapolate from other client and counselor variables. Bellini (2002) reported that counselor gender, counselor race, and counselors who have taken a graduate multicultural class, or multicultural training all significantly predicted MCI total score. Wheaton and Granello (1998) reported similar results associated with different levels of multicultural training on several of the MCI subscale scores. Whitehead (2003) reported, however, that counselors did not perceive training as a significant predictor of any type of cultural competence. In his second study, Bellini (2003) appears to contradict his previous findings by indicating that client race, counselor race, and counselor cultural competency do not constitute highly influential determinants of rehabilitation outcomes, but that they do have a measurable impact.

While these inconsistent findings begin to address the influence of cultural competency on the vocational rehabilitation process and successful outcomes, they do not definitively explain how cultural competency influences successful outcomes. There are several inconsistencies in the research that confound the complex and embedded nature of

the relationship between cultural competency and successful employment outcomes. Bellini's (2002) reports a higher proportion of culturally and linguistically diverse consumers on counselors' caseload does not contribute to higher cultural competency is inconsistent with Sodowsky's (1998) finding that a higher proportion of CLD consumers on the caseload does influence MCI total score. Having more experience with CLD consumers should influence a counselor's Relationship subscale score. Since only three studies considered cultural competency as it relates to client successful outcomes further consideration in future research is warranted.

Future Research

Investigation of cultural competency of vocational rehabilitation counselors has been limited thus far to empirical studies that have considered the counselor-consumer relationship in terms of Caucasian / non Caucasian or Caucasian/African American. While grouping CLD counselors together in prior research was necessary given the small number counselors, future research needs to make concerted efforts to include substantial CLD counselors from many different ethnic groups. Given the small numbers of minority counselors in most state vocational rehabilitation agencies (Whitney-Thomas, Timmons, Gilmore & Thomas, 1999), this may be difficult but it is vital to accurately operationalize the construct of counselor-client similarity (Bellini, 2002).

It may be difficult to sample sufficient numbers of CLD counselors in the vocational rehabilitation system but qualitative methodologies would enable accurate assessment. Qualitative methods would allow researchers to assess counselor perspectives,

understand the best practices for training, and explore inter-group differences. Many researchers have explored how culture impacts vocational services and outcomes for specific culturally and linguistically diverse groups (Balcazar, 2001; Chan, Lam, Wong, Leung, & Xu-Shen, 1986; Cuellar & Arnold, 1986; Feist-Price & Ford-Harris, 1994; Fischer, 1991; Leal-Idrogo,1993; Leung, & Sakata, 1986; Lowrey, 1987; Marshall, Martin, Thomason, & Johnson, 1991; Martin, Frank, Minkler, & Johnson,1986; Medina Marshall, & Fried,1986; Morgan, Guy, Lee, & Cellini,1986). It is important to take these experiences and translate them into greater understanding of cultural competence. The experience of the vocational rehabilitation counseling relationship may vary considerably across cultural demographics and research can inform both practice and research. In a discussion with Dr. Keith Wilson regarding cultural competence, Dr. Wilson remarked that it is essential to examine different phenotypes and consider all ethnic groups in research in significant numbers so as to consider unique consumer and counselor perspectives (personal communication, December 8, 2005) These perspectives offer an important contribution to the literature. They may offer additional insight into the cultural competency construct.

Exploring consumer and counselor perspectives can begin by utilizing the RSA 911 database, the database most frequently utilized for research in vocational rehabilitation, in a different manner. The RSA 911 database is compiled from data collected from all state vocational rehabilitation programs and includes demographic data on all clients who apply for services, whether they are determined eligible for services, whether a plan is developed, what services are provided, and what outcome that consumer achieved. At the national level, this database is devoid of counselor identification information and there is no way to

correlate client outcome to specific counselor. Developing a way to correlate this data to counselor demographics would be a substantive contribution to the literature on cultural competency.

Another possibility would be to consider the use of client satisfaction data as a measure of culturally responsive service provision. By using client satisfaction data, the research would be incorporating client perspective into the discourse on cultural competency. The Longitudinal Study of the Vocational Services program (LSVRP) database does contain consumer satisfaction variables that might be explored in relation to counselor variables. As Kosciulek mentions, "the LSVRP database affords ….researchers the opportunity to study, assess, and report ….a critical evaluation of the VR program processes and outcomes" (p. 179). Would a study that quantified counselor cultural competency with client satisfaction and service outcomes contribute to our understanding of cultural competency? What if the consumer variables could be correlated to counselor ethnicity?

A significant limitation in the use of the LSVRP database is that the information reflects a national population sampling. There is no mechanism in the database by which to identify which consumer variables are from which state or which counselor. By going back to the state agency database and utilizing the data prior to removing counselor variables, a critical linkage is made specific to the question of ethnicity.

This researcher has constructed this dissertation specifically to address a critical link missing in the field of research on cultural competence. Research that specifically

correlates counselor ethnicity and self -report scores of cultural competence to consumer services and outcomes provides a vital piece of information to understanding the influence of cultural competence on service provision. This researcher initiated correspondence with the State of California Department of Rehabilitation to consider these issues and questions. California is a state of remarkable diversity, and the state agency has devoted considerable attention over the past few years to developing a workforce that is responsive to its constituency. The state has agreed to support this valuable line of inquiry, to research client-counselor racial similarity and juxtapose it with quantitative analysis of counselor self-report of competency. By exploring how counselor ethnicity intersects with consumer services and outcomes the research base on cultural competence gains insight into how cultural competence is implemented in practice. It will help the field of vocational rehabilitation to meet not only the needs of its increasingly diverse constituency, but to provide services that are responsive and attentive to the needs of culturally and linguistically diverse consumers and counselors.

CHAPTER 3

METHOD

Numerous researchers have studied the concept of cultural competency for vocational rehabilitation counselors using self-report assessment (Bellini, 2002; Matrone & Leahy, 2005; Wheaton & Granello, 1998). Studies have not considered cultural competency, however, in relation to counselor ethnicity. Studies that have studies explored counselor/consumer racial similarity have lumped all CLD participants together as *non-minority* (Bellini, 2003). In addition, the literature base lacks specific studies that explore counselor self-report and specific counselor ethnicity against specific consumer case service variables as well as employment outcome variables and consumer ethnicity. Understanding how counselors not only perceive their own cultural competency in terms of cultural awareness, cultural knowledge, cultural skill, and cultural relationship is vital to the provision of culturally responsive vocational rehabilitation services. Considering client outcome in correlation with counselor ethnicity will contribute significantly to the body of literature by augmenting the knowledge base on culturally responsive service delivery.

The purpose of this study is to explore whether counselor/client racial similarity is related to services provided and employment outcomes achieved. By conducting this research, one can begin to ascertain how cultural competency and similarity on ethnicity influences service provision and employment outcomes. This

research may provide guidance to improve the training and education of rehabilitation counselors in effective multicultural counseling practices. This study also investigates the relationships between counselor demographics and consumer demographics on case service variables and employment outcomes. Utilizing the State of California's RSA-911 file (amended to include counselor caseload numbers), counselor on line surveys of the MCI instrument, and a validated data set of counselor education and training from the State of California's staff development department, chi-square along with univariate, and multivariate research design methodology was used to test the following two statistical hypotheses:

1. Ho: Clients who are served by counselors who are similar in ethnicity are not different from clients served by counselors dissimilar in ethnicity on type of service provision and employment outcome.
2. Ho: Counselors who self-report higher levels of cultural competency are not more successful in assisting culturally and linguistically diverse consumers achieve employment than counselors with lower levels of cultural competency.

Study Design

The design for this study is predominantly correlational. Relationships among counselor and consumer variables were analyzed to determine if significant differences existed in case service variables, and employment outcomes for consumers served by counselors who were similar in ethnicity versus consumers served by counselors who were dissimilar in ethnicity. Relationships among counselor and consumer variables were also analyzed to determine if significant

relationships existed in case service variables and employment outcomes for consumers served by counselors who reported high versus low levels of cultural competence.

This researcher used the census projections from the 2005 American Community Survey to extract population demographics for California. These statistics reflect that approximately 35.2 million people live in the state, 26.6 are over 16 and 17.3 million of those individuals are in the workforce (US Census Bureau, 2005a). The statistics also reveal several interesting cultural issues. The American Community Survey for California indicates 13.8 million individuals speak a language other than English in the home, 5.3 million are foreign born from Latin America, and 3.3 million are foreign born from Asia. With respect to disability, 2.4 million persons between the ages of 16 and 64 have a disability and the number climbs to 3.7 million if individuals over 64 are included (US Census Bureau, 2005b). The racial demographics reflect that 12.5 million individuals indicate race as Hispanic or Latino of any race, 2 million African American and 4.3 million Asian (US Census Bureau, 2005c).

Participants

There are two groups of participants in this study. The first group of participants for this study is practicing rehabilitation counselors in the State of California. The secondary group of participants comes from archival data retrieved from the California RSA 911 database for 2006 consisting of vocational rehabilitation

consumers. These two groups of participants were merged into one dataset. The variables of the dataset are described in a later section.

Vocational Rehabilitation Counselors

Participant counselors were contacted either directly at their own electronic mail address, through their Rehabilitation Supervisor or their District Administrator. They received a copy of the letter listed in Appendix A that follows the format for waived consent recommended for Human Subjects Research through the Institutional Review Board at the University of Texas at Austin. Participant surveys were tabulated and maintained using the electronic Survey program entitled Survey Monkey. The initial request for survey participation required eight electronic follow up requests to garner the required 25% response rate. This researcher contacted state administrative personnel and managers to elicit continued support. Administrators then followed up with counseling staff to make necessary follow up requests for more voluntary participation.

Initially, this researcher intended to obtain counselor education and training solely through use of additional questions on the demographic cover sheet. However, in discussions with state personnel they advised that this self-report information was highly inaccurate and subject to considerable error in data reporting. Because the State of California has implemented a rigorous certification of credentials process as part of their commitment to meet the mandate for Certification Standards of Professional Development (CSPD) under the RSA directive for "qualified rehabilitation professional," each counselor must complete

an extensive application for certification, complete with copies of their transcripts and professional licenses. These records are maintained in what state professionals refer to as their "validated" database. This database does not contain information about counselor ethnicity but it does require information about bilingual pay compensation that indicates fluency in a secondary language targeted to serve a specific population. This dataset provided information that corroborated the self-report results submitted by the rehabilitation counselors in the survey sample, it also verified that the sample of counselors completing the survey was representative of the experience and education level of counselors throughout the state. The state has over 756 rehabilitation counselors in 23 service district geographic regions. These counselors constituted the first group of research participants.

Information about ethnicity is not maintained by the State personnel system. The state indicated that due to recent passage of a proposition banning employers from collecting data on employee ethnicity, the state does not have that information to contribute to the database. Counselor ethnicity was obtained through counselors self-report on the electronic demographic cover sheet that accompanied the MCI Survey.

As previously indicated in the census statistics, this state has considerable diversity and offers a rich subject pool. Of the 756 rehabilitation counselors sent an electronic mail copy of the online survey, 214 counselors responded. This is a 28.3% response rate. However, only 188 counselor records contained complete demographic information (ethnicity and caseload number being the definitive

variables). See Table 3 for demographic information on these counselors. Further counselor demographics specific to the sample of vocational rehabilitation counselors who were matched with their rehabilitation consumers are presented in Chapter 4.

Table 3. Vocational Rehabilitation Counselor Demographics

Ethnicity	N	%
Caucasian	117	62.2
African American	16	8.5
Asian	16	8.5
Hispanic	23	12.2
Other	14	7.4
Valid	2	1.1

Experience	N	%
AA degree	5	2.7
BA unrelated to field	11	5.9
BA related to field	20	10.6
BA in Rehab	4	2.1
MA unrelated	15	8.0
MA related to Rehab	36	19.1
MA in Rehab	94	50.0
Doctorate	2	1.1
Valid	1	.5

Education	N	%
>than 1 yr.	29	15.4
1-4 years	17	9.0
4-7 years	29	15.4
7-10	37	19.7
< 10 years	75	39.9
Valid	1	.5

When the counselor survey responses are further triangulated with the California RSA 911 (CA-RSA911) dataset, only 86 counselor records could be correlated with the CA-RSA911 dataset. This is because some counselor survey files did not include caseload numbers, some caseload numbers were duplicate numbers, and only those counselors who completed the survey and had consumers represented in the CA-RSA911 dataset were included for analysis. While the

duplicate caseload numbers reflected different counselor demographic variables- indicating that they were in fact different counselors- the numbers had to be purged from the dataset as they indicated cases that had been transferred during service provision. This limitation will be discussed in further detail in Chapter 5.

The caseload number was the common variable between the SPSS consumer data file of CA-RSA911 and the Excel database of MCI survey responses that was used to merge the two datasets. This resulted in a master dataset from which random samples of mismatched counselor/consumer ethnicity dyads were drawn to roughly equivalent sizes as their match counterparts for the multivariate analysis. The entire dataset was used for the chi-square analysis with each counselor/consumer similar versus dissimilar dyad compared to specific dichotomous service and employment outcome variables. These results are discussed further in Chapter 4.

Vocational Rehabilitation Consumers.

The second group of participants comes from the RSA 911 data file submitted by the state of California (CA RSA 911). This data file is a compilation of consumer demographics and case service variables that illustrate who received services in the state, what kinds of services they received and what the outcome of those services was. State and federal vocational rehabilitation agencies annually compile the RSA 911 data file and submit it to the Rehabilitation Services Administration as a report of that agency's performance in serving individuals with disabilities. This study utilized the file submitted by the State of California for fiscal

year 2006. Programmers in the state's informational services department amended the file to include counselor caseload numbers so that consumer outcomes as well as consumer ethnicity could be specifically correlated to specific counselors.

The RSA 911 database from 2006 contains the most current information reported to the federal Office of Rehabilitation Services Administration, the federal oversight agency for the state vocational rehabilitation system. Each state reports annually to the federal government information pertaining to basic consumer demographics, as well as consumer application and eligibility, services provided, and outcome achieved. Unfortunately, the RSA dataset is limited to five racial categories and one question pertaining to whether individuals are Hispanic or not. Consumer primary language is reported, but counselors are not able to input multiple languages or even multiple ethnicities. Further limitations will be discussed regarding use of the RSA database in Chapter 5.

Each state submits their consumer information to the federal database. When state agencies submit information to the federal government, the state agencies remove caseload identification number or counselor identification number. The database cannot be traced to match counselor to specific client without this information. The state of California agreed to provide this researcher with their RSA 911 2006 dataset that contained this information. The CA-RSA 911 dataset combined with the counselor self-report of ethnicity and MCI self-report scores provided a complete profile of counselor/consumer data necessary to answer the research questions.

The State of California's RSA 911 data file contained consumer records for over 47,000 clients. There was only one criteria for subject participants in this research study. Subject participants had to be consumer participants selected from the CA RSA 911 served by counselors whose caseload numbers were reported as numeric codes in the online MCI survey. As previously mentioned, this study used only those records that individually matched with counselors who reported their caseload number in the online MCI survey. Of the 214 surveys completed, only 86 counselors could be matched to consumer records. The total number of consumer records that matched counselor caseload numbers was 8,076. See Table 4 for ethnicity demographic information on vocational rehabilitation consumer participants. While there were 8,076 vocational rehabilitation consumer records in the dataset, race and ethnicity were treated as inter-related variables by the RSA Case Reporting Manual. Therefore, consumers can have more than one race. In fact, the manual states, "since a person can have more than one race, more than one race variable can contain a code of 1 for an individual." (RSA,2006, p.11) Ethnicity is coded in the CA-RSA 911 dataset as either Hispanic or Latino. This categorization is separate in the RSA database from race and represents the only ethnicity sub group that counselors can select when entering the consumer's basic demographic data. It is a very narrow categorization of ethnicity. And yet as results will show, this categorization presents interesting questions for further discussion in Chapter 5. Further demographic information on vocational rehabilitation consumers is also presented in detail in Chapter 4 Results.

Table 4. Vocational Rehabilitation Consumer Ethnicity Demographics

Ethnicity	Caucasian	African American	Asian	American Indian	Hawaiian Pacific Isl.	Hispanic Latino
Frequency	5,487	1,308	314	173	129	1,738

In comparing the information in the tables of consumer and counselor ethnicity it is apparent that there are two categories of consumer race/ethnicity: American Indian/Alaskan Native and Hawaiian/Pacific Islander that do not match with reported counselor ethnicity. Given that this study compared matched vs. mismatched counselors/consumer dyads, this presented an interesting challenge for this researcher. Details on how this issue was addressed are presented in Chapter 4 Results.

Instrument

The instrument utilized in this dissertation was the *Multicultural Counseling Inventory* (MCI) developed by Gargi Sodowsky. This instrument was used by permission of a licensing agreement and cannot be appended to this research as a condition of that contract. Any questions regarding the actual instrument should be addressed directly to Dr. Gargi Sodowsky at the Antioch New England Graduate School, Department of Clinical Psychology.

The MCI was uploaded in an electronic, online format and was available for counselors to complete for one month. Time was extended due to the need for additional respondents to obtain a sufficient sample. The electronic format of the instrument allowed counselors to use a secure and encrypted website. This secure website maintained counselor confidentiality and privacy. The instrument was

scored using a four point Likert scale, and a scaled score was obtained for each of the four dimensions of cultural competency as well as an overall total MCI score. These results are presented in detail in Chapter 4 Results.

Research on cultural competency in the field of vocational rehabilitation has predominantly used the *Multicultural Counseling Inventory* (MCI). In fact, the MCI was used in 7 of the 11 empirical articles reviewed in the literature synthesis. Therefore, a brief explanation of its development and measurement is necessary.

The MCI instrument, developed by Gargi Roysircar-Sodowsky in 1994, is a 40 item, self-report instrument designed to measure competence as it pertains to counseling behaviors. Dr. Sodowsky took the three dimensions articulated by Sue et al. (1992): knowledge, skill and awareness and added a fourth dimension which is referred to as multicultural relationships. This self-report inventory quantifies these four constructs of cultural competency. See Table 5 for further information. Given its brief format, the facility of administration and its focus on counselor behaviors, it is ideal for a concise snapshot of cultural competence in practical application.

The MCI is widely regarded in the field of counseling as having strong psychometric properties (Cumming-McCann & Accordino, 2005). The inventory was developed from two quantitative research studies. The first study included 604 psychology students, psychologists, and counselors in a Midwestern state, 95% of which were Caucasian. The second study included a national sample of 320 counselors affiliated with university counseling centers of which 30 were Asian American, 46 were African American, and 25 were Hispanic (Sodowsky et

al.1994). Tests of internal consistency and reliability reported by Sodowsky et al. (1994) demonstrate strong internal consistency reliability, reasonably distinct dimensions of the four factors, and full scale score of competence across all four factors.

Table 5 Dimensions of the Multicultural Competency Inventory

Skill – 11 items.	Measures general counseling as well as specific multicultural counseling techniques and methods of assessment
Awareness-10 items	Measures multicultural sensitivity, interactions, and advocacy in general life Experience and professional activities.
Relationship- 8 items	Measures a counselor's perceived interactions with minority clients, including comfort level and stereotypes.
Knowledge- 11 items	Measures treatment planning, case conceptualization and multicultural counseling research.

Source: Sodowsky, G. (1994). Development of the multicultural counseling inventory: A self report measure of multicultural competencies. *Journal of Counseling Psychology, 41*(2), 137-148.

Procedures

This study involved analyzing the state of California's annual (2006) RSA data file as well as electronic self-report surveys completed by practicing vocational rehabilitation counselors. The State was contacted to obtain the counselor validated data, the RSA data file as well as permission to survey current employees with a short voluntary electronic survey (MCI). Because the nature of the data request required staff programming hours to insert caseload numbers into the data file, approval from the State's legal office was required. This researcher forwarded the approved proposal for research from the University of Texas at Austin institutional review board (IRB) for research involving human subjects to the Legal Office of the

State of California Department of Rehabilitation to support the request for the data file. This researcher also obtained approval from The State of California Department of Rehabilitation, Deputy Director for Employment Preparation Services.

The electronic survey was disseminated via the Deputy Director and District Administrators of the State of California Department of Rehabilitation to all of their qualified vocational rehabilitation counselor professionals. Rehabilitation supervisors provided encouragement to counselors and asked for all of their current vocational rehabilitation counselors to participate in the online survey adaptation of the MCI to assess multicultural competency. Participants were notified through electronic mail distribution lists with a cover letter requesting their participation in the online self-report instrument. Participants ranged from newly hired vocational rehabilitation counselors to senior vocational rehabilitation counselors. The counselors randomly elected to participate in the survey. The demographic results for counselors who participated are presented in the first section of the Results section.

While counselors self-reported their level of education and training as part of the online survey, this information was also obtained from the validated dataset received from the Department of Rehabilitation Office of Personnel. The significance of this fact is that the Department of Rehabilitation is required to review a counselor's level of education and training as part of the federal initiative towards providing continuous professional development. Continuous professional

development is an important part of the1998 Amendments to the Rehabilitation Act. The amendment inserts the word "qualified" into the description of rehabilitation professionals. This word is vital to the development of highly skilled counselors who have the appropriate training and education as well as cultural competence to serve CLD consumers. Comparing the self-report data from the counselor surveys with the validated data contained in the official records maintained by the Department of Rehabilitation Personnel office indicates that the sample of rehabilitation counselors is representative of the total population and that counselors appeared to accurately report their demographic data.

Variables

The 2006 RSA 911 Case Service Reporting Manual was used as a reference tool to decode the variables for this study. The RSA-911 Case Service Reporting Manual contains definitions for demographic variables and case services. It provides guidance to all state-federal vocational rehabilitation programs as to the format in which to report their outcomes. The manual is presented as a policy directive to state-federal agencies, and the version used for this study was dated October 5, 2006.

The variables analyzed in this study are classified in two distinct categories: counselor demographic information and consumer demographic/categorical information. The consumer variables consisted not only of demographic variables but selected categorical variables related to types of case services provided to consumers as a part of their vocational program. There are over 39 case service

variables listed in the RSA 911 Policy Directive (2006) that describe the types of services that consumers could receive during their tenure with the vocational rehabilitation services agency. Five of these variables were selected as a representation of the entire spectrum of supports available to consumers during the vocational rehabilitation process. In addition to the case service variables, three outcome variables were reviewed: successful closure, wages at closure and hours worked at closure. All of the consumer service or outcome variables were categorized as categorical data because they were reported as either received or achieved (coded as 1) or not received not achieved (coded as 0).

Counselor Variables

The following counselor demographic variables were collected on each counselor in the sample:

Caseload number. This is a 3 digit combination of letters and numbers assigned to each vocational rehabilitation counselor and it identifies the consumer as being a part of that counselor's caseload at the time their case was closed. (continuous data)

Ethnicity. The rehabilitation counselors reported this data on the MCI survey. It was categorized as either: White, African American, Asian, Hispanic or Other. (categorical data)

Level of Education. Rehabilitation counselors reported this data on the demographic cover sheet on the MCI survey. It was denoted as either:

Associates Degree, Bachelor's Degree, Masters Degree in Rehabilitation Counseling, Master's Degree in related field (categorical data)

Length of Experience/Yrs. of State Service. Rehabilitation counselors reported this data on the demographic cover sheet of the MCI Survey. It was categorized as less than a year, one to five years, five to eight years and more than eight years experience.(categorical data)

MCI Knowledge. This was a scaled score based on the counselor's responses to the MCI survey items related to MCI Knowledge.

MCI Skills. This was a scaled score based on the counselor's responses to the MCI survey items related to MCI Skills.

MCI Awareness. This is a scaled score based on the counselor's responses to the MCI survey items related to MCI Awareness.

MCI Relationship. This is a scaled score based on the counselor's responses to the MCI survey items related to MCI Relationship.

MCI Total Score. A combined score based on the sum and average of the four subscale scores.

Consumer Variables

There were two types of consumer variables collected as a part of this study sample: demographic and VR service or outcome related. The consumer demographic variables collected as a part of the sample were:

Race. This variable was reported as: White, African American, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, Hispanic or Latino.(categorical data)

Ethnicity. Entries are required for both Hispanic ethnicity and race. This is a categorical variable with valid codes of either 0 or 1 for each position.

Gender. Reported as 1 for Male and 2 for Female.(categorical data)

Level of Education at time of application. Valid codes are 0 thru 8 ranging from no formal schooling (0), elementary schooling (1), Secondary education no diploma (2), Special education certificate of completion (3), High school graduate (4), Post secondary education no degree (5), Associate degree (6), Bachelor's Degree (7), to Master's Degree or higher (8) (categorical data).

Service or Outcome Variables.

The VR service related or outcome variables analyzed in this study were:

Competitive Employment. One digit code that indicates whether an individual was closed in competitive employment or not at the time the case record was inactivated.

Cost of Purchased Services. This is the total amount of money spent by the State VR agency to purchase services for an individual over the life of the current service record. (categorical data)

Job Search. This case service variable is defined as," a referral to a specific job resulting in an interview, whether or not the individual obtained the job." (RSA, 2006, p.28) (categorical data)

Maintenance. This service is defined as," monetary support provided for those expenses such as food, shelter and clothing that are in excess of the normal expenses of the individual and that are necessitated by the individual's participation in an assessment for determining eligibility and VR needs or while receiving services under an IPE." (RSA, 2006, p.28) (categorical data)

Rehabilitation Technology. This service is defined as the systematic application of technologies, engineering methodologies, or scientific principles to meet the needs of, and address the barriers confronted by, individuals with disabilities in the areas that include education, rehabilitation, employment, transportation, independent living and recreation." (RSA, 2006, p.29) (categorical data).

College Training. Full or part-time academic training above the high school level leading to a degree, a certificate or other recognized credential. (RSA,2006, p.26)

Hourly wage at closure. This was an outcome variable indicating the individual's hourly wage at the time the case record was closed.

Weekly earnings at closure. Indicates the total gross earned income received by an individual each week.

*Data Analysi*s

The first research question asked whether consumers who are served by counselors who are similar in ethnicity differ significantly from consumers served by counselors dissimilar in ethnicity with respect to type of service provision and or

employment outcome? This question presented in the Ho hypothesis is: clients who are served by counselors who are similar in ethnicity are not different from clients served by counselors dissimilar in ethnicity on rehabilitation rate, type of service provision and employment outcome. This null hypothesis was tested using two different types of analysis because of the two different types of variables present in the dataset. The dichotomous variables of rehabilitation technology, college training, job search, maintenance and competitive employment were tested using chi-square. The entire sample dataset of 8,076 records was used to conduct the chi-square analysis. The continuous variables of cost of services provided, hourly wage at closure and weekly earnings at closure were evaluated using univariate analysis (ANCOVAs) with the two groups (similar/dissimilar) as the fixed factor and the variables of type of service provision and employment outcome as dependent variables. Control variables were age, education at application and significant disability. These covariate factors were pooled and held constant in a MANOVA, to first test for any violations in the homogeneity of slopes assumption. This will be discussed further in Chapter 4.

The disparate matched group samples necessitated a random sample selecting 1% of the population of the five match vs. mismatched groups in order to create roughly equivalent group sizes for the ANCOVA tests. Four separate datasets, one for each ethnicity matched sample, were randomly selected for analysis. Given the sizeable population of Caucasian counselors/consumers it was not necessary to

create a separate dataset as this group was represented in roughly equivalent numbers in the larger dataset. See Table 6 for information on the sample sizes.

Twenty five separate chi-square tests were conducted on the dichotomous variables in Question One using an alpha of .05. Fifteen separate ANCOVAs were conducted on the continuous variables in Question One using an alpha of .05. Results are presented in Chapter 4.

Table 6 Match vs. Mismatch Population and Group Sample

Match vs. Mismatch	Total N	Group Sample n
Caucasian	4353 to 3723	4353 to 3723
African American	66 to 8,010	66 to 74
Asian	11 to 8,065	11 to 19
Hispanic	284 to 7,792	284 to 280
Other	???????????#	

The second research question asked if there is a significant relationship between MCI Total score and/or MCI subscale scores on counselors and consumer outcomes. Again, chi-square and univariate analysis (ANCOVA) were employed to test this question using the same case service and outcome variables selected for Question One. Therefore, there were nine chi-square tests conducted on the same dichotomous variables identified in Question one. For the continuous variables, nine separate tests for homogeneity of slope as well as subsequent ANCOVAs were conducted. The sample consisted of the entire dataset containing the 8,076 consumer records with the 86 counselor records embedded in the consumer files.

Counselors were classified in this total sample into two distinct groups based on a median split of their MCI total, MCI_Awareness and MCI_Skills subscale scores. These median score variables then became the pairing variables in the chi-square tests and the fixed factors in the ANCOVA tests. The dependent variables were identical to the variables utilized in the first research question: cost of services, hourly wages at closure and weekly earnings at closure. The covariate factors were again handled in the same way as question one. First a preliminary *pool*match* syntax was run on age, education, and significant disability. These tests for homogeneity indicated four violations, so only eleven univariate ANCOVAs were executed to test the null hypothesis that there are no significant relationships between level of counselor MCI total scores and subscale scores and level of consumer services and outcomes.

In addition to the ANCOVAs conducted on the merged dataset of CA-RSA911 and MCI data; two additional analyses were conducted on the counselor data contained solely in the MCI dataset. First, a one-way ANOVA was conducted using MCI total score as the dependent factor and a fixed factor of ethnicity to determine if there was a significant relationship between ethnicity and MCI total score. Secondly, a Repeated Measures ANOVA with a within-subjects factor of the 4 MCI subscales and a between subjects factor of ethnicity was conducted on just the MCI dataset in order to determine if there was a significant difference between the subscale scores for the counselors. These results are presented in Chapter 4. These tests served as the preliminary analysis prior to proceeding with pairing the survey sample data with the consumer information.

CHAPTER 4

RESULTS

This chapter presents the results of the data analysis conducted for this study, and is subdivided into four sections. The first section addresses counselor participant demographics for the counselor surveys as well as the results of the analyses or MCI total and MCI subscale(s). First, the results for the subset of 86 counselors selectively merged with the consumer data pool are presented. It is at this level that the most significant findings in this research study occurred. The second section addresses participant demographics for the vocational rehabilitation consumers. The remaining two sections will address the two research questions under investigation.

Vocational Rehabilitation Counselors

The vocational rehabilitation counselors that participated in the *Multicultural Counseling Inventory* (MCI) were a representative sample that was fairly well educated and had several years of rehabilitation experience. More than 59.6% of the counselors surveyed had 7 years of experience or more and over 51.1% had obtained at least the educational standard for the career field (a Master's Degree in Vocational Rehabilitation Counseling). A majority of the counselors (62%) were Caucasian. The counselors who records were merged with consumer data also represent a fairly well educated and experienced sample. Over 72.1% of the sample counselors had achieved a Master's in a related field of rehabilitation counseling or higher and 59.3% had 7 years of experience or more. With regards to ethnicity, data reflects that there is a preponderance of Caucasian counselors

(69.8%) represented in the sample. See Table 7 for detailed information about the counselor sample.

Table 7 Education, Experience, and Ethnicity for Counselor Subset, N=86

Characteristic		n	%
Education			
(0)	Associates Degree	0	
(1)	BA unrelated	5	5.8
(2)	BA related	12	14.0
(3)	BA Rehabilitation	2	2.3
(4)	MA unrelated	5	5.8
(5)	MA related	21	24.4
(6)	MA Rehabilitation	40	46.5
(7)	Doctorate	1	1.2
	Total	88	100.0
Experience			
(0)	> 1 year	12	14
(1)	1-4 years	10	11.6
(2)	4-7 years	13	15.1
(3)	7-10 years	19	22.1
(4)	10 or more	32	37.2
	Total	88	100.0
Ethnicity			
(1)	Caucasian	60	69.8
(2)	African American	3	3.5
(3)	Asian	3	3.5
(4)	Hispanic	10	11.6
(5)	Other	9	10.5
	No Report	1	1.2
	Total	86	100.0

Counselor MCI survey data

A Repeated Measures MANOVA was conducted on the 4 subscales of the MCI for both the total counselor population and the counselor subset. Descriptive statistics are presented in Tables 8 for the counselor subset (N=86). Results indicate overall statistically significant

differences between counselor ethnicity and all 4 subscales scores on the MCI for the counselor subset F=206944.49 <.05.

Table 8 Descriptive Statistics MCI Subscale Scores versus Ethnicity N=86

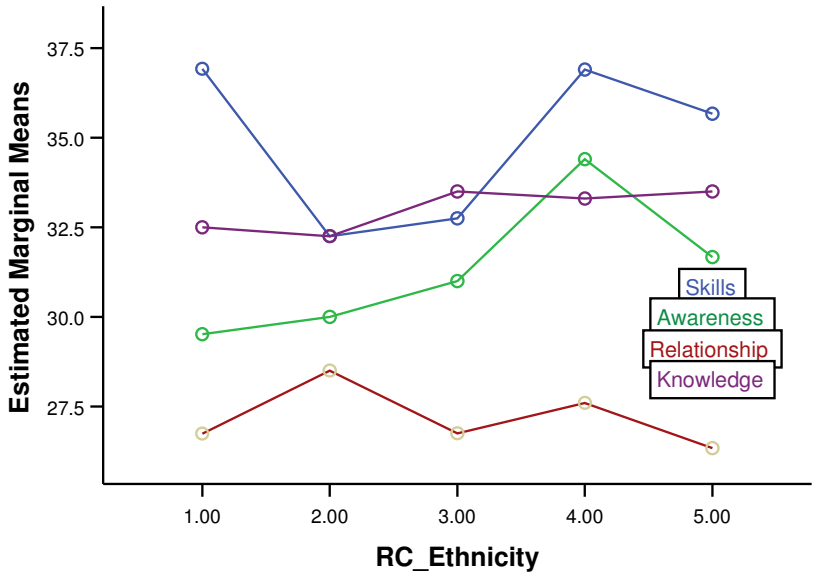
MCI scale	Ethnicity	Mean	SD	N
MCI TOTAL	Caucasian	124.50	12.83	62
	African American	122.25	5.123	04
	Asian	124.00	16.99	04
	Hispanic	131.40	10.13	10
	Other	126.33	9.287	06
	Total	125.30	12.27	86
MCI SKILLS	Caucasian	36.91	5.402	62
	African American	32.25	2.872	04
	Asian	32.75	6.020	04
	Hispanic	36.90	3.414	10
	Other	35.66	2.875	06
	Total	36.41	5.093	86
MCI AWARE	Caucasian	29.51	4.636	62
	African American	30.00	1.414	04
	Asian	31.00	6.377	04
	Hispanic	34.40	3.134	10
	Other	31.66	4.131	06
	Total	30.32	4.643	86
MCI REL	Caucasian	26.74	3.248	62
	African American	28.50	2.645	04
	Asian	26.75	2.629	04
	Hispanic	27.60	3.777	10
	Other	26.33	3.141	06
	Total	26.89	3.221	86
MCI KNOW	Caucasian	32.50	5.647	62
	African American	32.25	2.217	04
	Asian	33.50	6.757	04
	Hispanic	33.30	3.860	10
	Other	33.50	3.391	06
	Total	32.69	5.204	86

The median scores for the counselor sample subscales were then determined in order to categorize the outputs as either high or low competency ratings. The purpose of a median split was to define the independent variables for analysis in question 2. While the median splits artificially create a high and low demarcation, defining the variable in this fashion creates utility for educational research because, it provides a context with which to discuss a counselor's self-

reported attitudes, and the potential impact of the expression of those attitudes in terms of service provision to consumers. According to Dr. Roysircar-Sodowsky, "high and low demarcation can be determined on the basis of the distribution of scores. It is purely a measurement method and a theoretical" (Dr. Roysircar-Sodowsky, personal communication, March 30, 2008). The counselor sample had the following median scores: Awareness = 31, Skills = 37, Knowledge = 33, Relationship = 27, and Total score = 127.

See Figure 1 for the Profile plot of the Estimated Marginal means for the 4 subscales of the MCI across the 5 counselor ethnicities for the n=86 counselor subset.

Figure 1-Estimated Marginal Means MCI subscales * Ethnicity, N=86



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Vocational Rehabilitation Consumers

During the 2006 fiscal year, the CA RSA-911 data file reported on over 47,000 vocational rehabilitation consumers. The sample for this research consists of the 8,076 consumer records representing the consumers served by counselors in the MCI sample. Of these consumers, 4,502 were male and 3,504 were female, 5,487 reported race as Caucasian, 1,308 as African American, 173 as American Indian/Alaskan Native, 314 as Asian, 129 as Hawaiian/Pacific Islander. A total of 1,738 consumers reported their ethnicity as Hispanic/Latino. Hispanic/Latino is recorded in the RSA data file as a secondary ethnicity designation, therefore counselors can select Hispanic/Latino only after a primary designation of Caucasian, African American, Asian, American Indian/Alaskan Native or Hawaiian/Pacific Islander has been selected. This researcher chose to treat Hispanic as a distinct ethnic category as it represents the single largest culturally and linguistically diverse group of consumers in California. The limitation of how the Hispanic group is categorized in the RSA dataset will be discussed in further detail in Chapter 5.

Additional demographic data indicates that the median age of the consumer sample was 39 years, more than 34% had achieved some post secondary education or higher at the time of application, and 85.7% were reported to have a significant disability. Table 9 presents additional demographic data for all the consumers in the study sample. The demographic variables of age, education at application and significant disability were the covariate factors in the ANCOVA analysis for both research questions. The covariate factors were selected because prior literature in the field indicated that the factors of age, education at application and significant disability are several of the consumer variables that have significant influence on consumer outcome (Bellini, 2003).

Table 9 Age, Education, Ethnicity, Significant Disability Consumers, N=8076

Characteristic		n	%	Mean	Median	Std. Dev.
Age		8076	100	39.54	39.00	16.176
Education at Application						
(0)	No formal schooling	15	.2			
(1)	Elementary education	196	2.4			
(2)	Secondary Education	1592	19.7			
(3)	Special Ed. Certificate	1047	13.0			
(4)	High School grad	2321	28.7	.		
(5)	Post Secondary no degree	1408	17.4			
(6)	AA or vocational cert.	647	8.0			
(7)	Bachelor's degree	548	6.8			
(8)	Master's degree/higher	169	2.1			
	No Report	133	1.6			
	Total					
Significant Disability						
	Yes	6921	85.7			
	No	370	4.6			
	Missing	785	9.7			
Ethnicity						
	Caucasian	5487	67.9%			
	African American	1308	16.2%			
	Asian	314	3.9%			
	American Indian/ Alaskan Native	173	2.1%			
	Hawaiian/ Pacific Islander	129	1.6%			
	Hispanic	1738	21.5%			
	No Report	79				

Research Question 1

The first research question asked if consumers served by counselors who are similar in ethnicity versus consumers served by counselors who are dissimilar in ethnicity differed significantly in terms of level or type of service provision and employment outcome. Results

of this question are presented in two parts: a) chi-square results and b) ANCOVA results. First, 25 chi-squares were performed on the dichotomous case service and outcome variables. Secondly, 15 tests for homogeneity of slope were performed on the continuous case service and employment outcome variables. These fifteen tests indicated that there were four violations to report, one significant result, two results approaching significance and 8 ANCOVAs that were not significant. All ANCOVAs used =.05. Summary results for the chi-square findings are presented in Table 10. Detailed frequency counts can be found in Appendix A-E.

Chi-square Results

Table 10 ² Match _Mismatch Case Service and Outcome Variables, =.05

Groups	Variables	χ^2	*df*	Asymp. Sig.
Caucasian	Jobsearch	.002	1	.969
	Maintenance	2.79	1	.095
	Rehab.Tech	12.90	1	.000*
	College	14.22	1	.000*
	Comp.Emp	.024	1	.877
African American vs. Mismatch	Job Search	29.56	1	.000*
	Maintenance	.290	1	.590
	Rehab. Tech	expected cell count less than 5		
	College	.381	1	.537
	Comp. Emp.	expected cell count less than 5		
Asian vs. Mismatch	Job Search	8.224	1	.004*
	Maintenance	no variance		
	Rehab Tech	no variance		
	College	expected cell count less than 5		
	Comp. Emp	expected cell count less than 5		
Hispanic vs.Mismatch	Job Search	2.139	1	.144
	Maintenance	2.314	1	.128
	Rehab Tech	2.25	1	.134
	College	2.931	1	.08[a]
	Comp.Emp.	expected cell count less than 5		

Other	Job Search	.085	1	.770
vs. Mismatch	Maintenance	.160	1	.689
	Rehab Tech	3.227	1	.072[a]
	College	1.269	1	.260
	Comp. Emp.	Expected cell count less than 5		

*=significant at =.05, [a]=approaching significance

The chi-square results indicated four significant findings within the various match/mismatch groups. The first group representing the Caucasian match group had two significant findings, the African American match group had one significant finding, and the Asian match had one significant finding. Several findings in the table were approaching significance at =.05. Each of the significant findings will be interpreted individually.

The two significant chi-square findings in the Caucasian match group came in the service variables of rehabilitation technology and college training. The case service variable of rehabilitation technology indicated that if an individual did not share the same ethnicity as his or her counselor, they received rehabilitation technology only 4.3% of the time. If counselor/consumers shared the same Caucasian ethnicity, they had a 6.1% likelihood of receiving rehabilitation technology. Interpreted another way, it means that 66.7% of the matched sample received rehabilitation technology versus 57.7% of the matched sample that did not. For the case service variable of college training, 14.5% of the matched sample received the service versus 11.5% of the mismatched group received the same service. Therefore, the likelihood of receiving college training was significantly dependent upon whether the counselor/consumer pair was matched on ethnicity.

The match group of African American counselor/consumers had one significant result on the case service variable of job search. This result is interesting, however, because it shows an inverse relationship between matched group and service provision. This result

contradicts what would be expected if the null hypothesis were to be rejected. For this variable, individuals who were not matched with their counselor on ethnicity had a significantly higher likelihood of receiving this service than those that were matched with their counselor (56.3% versus 14.5%, respectively).

The final significant finding occurs within the Asian match group on the variable of job search. Again, we see the same contradictory findings that prevent rejection of the null hypothesis. For this finding individuals who were mismatched with their counselor were 75% more likely to receive job search assistance than those that were matched with their counselor on ethnicity (16.7%).

ANCOVA Results

Prior to discussion of the ANCOVA results, it is important to briefly discuss the use of a MANOVA to test for homogeneity of slope assumption. Given the small n (n=10) for the Match_Asian sample, this researcher decided to use a MANOVA pool*match syntax prior to running the ANCOVAs in order to test for homogeneity of slopes. This was instead of running a custom model to test for main effects along with 2, 3,and 4-way interactions on the covariates. The rationale for this method of analysis was that given the small n of the sample, pooling the effect of the covariates allowed for measurement of the main effect while the covariates are being held constant. One could still measure the overall effect of the covariates on the DV and not violate the homogeneity of slopes assumption if only one of the covariates were to have violated it on a single interaction (Tabachnick & Fidell, 2007).

The ANCOVA results for this question present equally ambiguous results. There was only one statistically significant result. Two results approached significance, whereas eight

results were not statistically significant. The one statistically significant result comes in the analysis of cost of services for matched versus mismatched consumer/counselors who were African American. As in previous findings, this too negates rejecting the null hypothesis. African American consumers who differed from their counselors on ethnicity received a mean cost per plan of $6,018 dollars compared to $1,834 dollars for African American consumers who had African American counselors. What it also interesting to note in this analysis is that the mismatched group had a standard deviation of over $14,000 dollars per plan versus $5,000 for the matched group. Table 11 presents the results for the continuous case service and employment outcome variable ANCOVAs.

Table 11 ANCOVA Results Match vs. Mismatch Service and Outcome Variables =.05

Group	Variable	*df*	F	Significance(*)
Caucasian	Cost of Service	1	2.234	.135
vs. Mismatch	Weekly Earnings	violated assumption of homogeneity		
	Hourly Wage	violated assumption of homogeneity		
Other	Cost of Service	1	2.02	.156
vs. Mismatch	Weekly Earnings	1	.052	.819
	Hourly Wage	1	1.24	.267
Hispanic	Cost of Service	1	.761	.383
vs. Mismatch	Weekly Earnings	1	3.17	.076[a]
	Hourly Wage	1	2.95	.087[a]
Asian	Cost of Service	1	.357	.554
vs. Mismatch	Weekly Earnings	1	1.78	.204
	Hourly Wage	1	1.40	.258
African	Cost of Service	1	5.38	.022*
American	Weekly Earnings	violated assumption of homogeneity		
vs. Mismatch	Hourly Wage	violated assumption of homogeneity		

=.05

Research Question Two

Results for this question are again presented in two parts: a) chi-square results and b) ANCOVA results. There were many more statistically significant chi-square and ANCOVA findings for this question than the previous research question. The chi-square results for this

question had nine statistically significant findings. The ANCOVA results indicated 4 statistically significant results. Each of these findings will be presented in turn.

Chi-square Results

The results of the chi-square analysis had statistically significant findings within both the MCI total score median split and the MCI Awareness and MCI Skills subscales. See Table 12 for detailed chi-square results. Also, please refer to Appendix F-H for detailed frequencies for each cell count.

Table 12 ² High/Lo Median MCI vs. Case Service and Outcome Variables, =.05

Groups	Variables	χ^2	*df*	Asymp. Sig.
MCI TOTAL.	Rehab. Tech	1.47	1	.224
High vs. Low	Maintenance	.358	1	.549
	Jobsearch	21.226	1	.000*
	College	11.31	1	.001*
	Comp.Emp	10.42	1	.001*
MCI SKILLS	Rehab. Tech	.141	1	.707
High vs. Low	Maintenance	15.088	1	.000*
	Job Search	6.147	1	.013*
	College	.848	1	.357
	Comp. Emp.	3.738	1	.053[a]
MCI Awareness	Rehab Tech	5.129	1	.000*
High vs. Low	Maintenance	.132	1	.716
	Job Search	22.28	1	.000*
	College	32.339	1	.000*
	Comp. Emp.	.021	1	.885

*=significant at =.05, [a]=approaching significance

Job search was statistically significant across all three groups, college was statistically significant in two of the groups (MCI total, MCI Awareness), competitive employment was statistically significant for two of the groups (MCI total, MCI Skills) and rehabilitation technology was statistically significant for the median split group on MCI Awareness.

First, the MCI total score group had three significant findings: job search, college and competitive employment. For those counselors demonstrating high cultural competency on their total MCI scores, they provided 32.6% of their consumers with job search versus counselors with low cultural competency only provided this service 27.9% of the time to their consumers. When it comes to the service variable of college training though, again we see contradictory results that prevent rejection of the null hypothesis. Counselors with high cultural competency only provided this service 11.6% of the time to their consumers versus counselors with lower cultural competency provided this service to their consumers 14.2% of the time. The final statistically significant result of competitive employment is also rather contradictory in that more consumers of counselors with lower cultural competency achieved competitive employment (n=16) versus consumers of counselors with high cultural competency (n=1).

For the subscale of MCI Skills, the variables of job search, maintenance and competitive employment all had significant findings. Again, one can see contradictory findings in the job search variable that prevent rejection of the null hypothesis. Counselors with high cultural competency provided job service to their consumers only 28.7% of the time versus counselors with lower cultural competency scores provided this service to their consumers 31.2% of the time. Concerning the significant finding in the case service variable of maintenance, counselors with high cultural competence provided this service 5.6% of the time versus counselors with lower cultural competency provided this service only 3.8% of the time. Finally, while competitive employment was statistically significant, we again see contradictory results given that 13 individuals whose counselor demonstrated lower overall

cultural competency achieved competitive employment versus only four individuals whose counselors indicated higher cultural competence ratings.

The final chi-square analysis on the subscale of MCI Awareness presents equally ambiguous results as the prior scales. The case service variable of job search reveals 32.4% of consumers whose counselor demonstrated high cultural competence ratings received the service versus 27.5% of the consumers whose counselor had low cultural competence ratings receiving the service. For the variables of rehabilitation technology and college training, again an inverse relationship exists. Consumers whose counselors had lower cultural competency ratings received more rehabilitation technology (5.7 versus 4.6%) and more college training (15.2% versus 11%) than consumers whose counselors had higher cultural competency ratings. These findings fail to substantiate any significant relationship between cultural competence and service provision. It is therefore important to consider the ANCOVA results to determine if a more definitive answer as to whether high cultural competence is more predictive of a consumer's success can be found.

ANCOVA Results

First, nine tests for the assumptions of homogeneity of slope were completed. There was only one violation of homogeneity. For the remaining eight variables, analysis proceeded with a full factorial model ANCOVA for each of the service and employment outcome variables at =.05. There were four tests indicating significance and four tests indicating no significant result. Table 13 presents details of these results.

The MCI Total scale had a finding that was approaching significance for cost of services provided. This finding is interesting because again one can see that counselors with

lower cultural competency scores spent more money per plan than counselors with higher total cultural competency scores ($3,177 versus $2,867 respectively). This finding again appears to reflect an inverse relationship between competence and cost with more money spent by counselors with lower cultural competency ratings.

Table 13 ANCOVA results Outcome Variables vs. HI/LO MCI scale scores, =.05

Groups	Outcome	Means	SD	N	F	Sig (*)
MCI_TOT	Cost of Service	$2867.62	$6541.31	3617	3.616	.057•
HI vs. LO		$3177.82	$7844.61	4459		
	Weekly Earnings	$280.71	$271.25	1339	.952	.329
		$290.40	$274.23	1732		
	Hourly Wage	$10.28	$7.98	1143	.092	.761
		$10.36	$6.57	1503		
MCI_AW	Cost of Service[a]					
HI vs. LO						
	Weekly Earnings	$257.67	$257.23	1613	37.489	.000*
		$317.70	$286.12	1458		
	Hourly Wage	9.68	7.50	1366	22.42	.000*
		11.01	6.83	1280		
MCI_SK	Cost of Service	$2836.78	$6,465.54	3788	5.48	.019*
HI vs.LO		$3217.43	$7,945.64	4288		
	Weekly Earnings	$287.29	$274.83	1332	.039	.843
		$285.32	$271.55	1739		
	Hourly Wage	10.31	8.02	1162	.011	.918
		10.34	6.52	1484		

[a]violated assumption of homogeneity of slope.,*p<.05,•=approaching significance

The subscale score of MCI Awareness had two significant findings. Both hourly wage and weekly earnings demonstrated significant results when compared by high and low competency ratings. However, both variables had inverse relationships with high cultural

competency ratings. Counselors with high cultural competency ratings on Awareness had consumers whose hourly wage and weekly earnings were less than consumers of counselors with low cultural competency ratings. Consumers whose counselors had low cultural competency scores on Awareness earned on average $11.01 per hour compared to $9.68 and earned approximately $50 more a week ($317.70 vs. $257.67).

Finally, the subscale score of MCI Skills had one significant finding for cost of services provided. Again, we see an inverse relationship between cultural competency and cost. Counselors with low cultural competency scores spent an average of $3217.43 per plan versus counselors with high cultural competency scores spending an average of $2836.78 per plan. The standard deviation between both of these means also reflects over a $1500 difference with counselors who reported low cultural competency reflecting greater deviation in cost at $7,945.64 and counselors with high cultural competency indicating a standard deviation of $6,465.54.

All of these results present an extremely complex picture. Given the conflicting findings, this researcher must fail to reject the overall null hypothesis for both research questions. First, this research fails to reject the null hypothesis that consumers who are served by counselors who are similar in ethnicity versus consumers served by counselors dissimilar in ethnicity differ significantly overall in terms of service provision and employment outcome. While we see disparate results within the variables analyzed, the results do not conclusively indicate that counselor/consumer dyads that are similar differ significantly from counselor/consumer dyads that are dissimilar. Secondly, it is not clear that higher self-reported MCI scores translate into any significant success for consumers in

terms of more quality service provision and greater successful outcome measurements. The results do offer some extremely interesting considerations for future research as well as implications for rehabilitation counselor education and training. These implications for research and rehabilitation counselor education are discussed in further detail in Chapter 5.

CHAPTER 5

DISCUSSION

The purpose of this study was to investigate the affect of counselor/consumer ethnic similarity and cultural competency on the provision of case service variables and employment outcomes. Included in this final chapter will be (a) discussion and integration of the study findings with past literature, (b) limitations, and (c) implications for practice, rehabilitation counselor education and future research.

Discussion and Integration of the Study Findings with Past Literature

In 2002 and 2003, Bellini began to explore the correlates of multicultural counseling for vocational rehabilitation counselors. Bellini's work was the first to look at counselor/consumer racial similarity compared to consumer employment outcomes. This study did not attempt to directly replicate Bellini's work, despite the fact that some of the design features were very similar-instead it sought to expand upon the prior research base and to explore in detail the potential impact of counselor ethnicity on vocational rehabilitation consumer outcomes. The primary difference between Bellini (2003) and this study is that Bellini's work collapsed ethnicity at the counselor level into Caucasian vs. other. While this was necessary given some of the small cell sizes, it limited the ability to examine the impact of counselor race on the dynamics of the counselor/consumer relationship. Similar to Bellini's (2003) study, and previous research (Pope-Davis & Ottavi, 1994; Sodowsky et al., 1998; Wheaton & Granello, 1998) this research indicated there were statistically significant differences on cultural competencies reported by the various groups of counselors.

Results were statistically significant for both the total counselor population of 188 and the counselor subset of 86. The most interesting aspect of this data comes within the counselor ethnicity category of Hispanic. This group reflects not only the highest mean scores across three of the four subscales but the tightest array of mean scores. Given that the population of the state from which this sample was drawn has a very large Hispanic population, preliminary interpretation of this data indicates that the state agency has a group of counselors that is responsive to meeting the needs of their culturally and linguistically diverse consumer population. Given the edict of the Rehabilitation Counselor Diversity Initiative is to, "ensure that rehabilitation counselors possess multicultural competencies" (Middleton, 2000, p. 220) it is possible that the rehabilitation counselor population of this state has at least one cultural subgroup (Hispanic) that is doing just that. What other possible significance do these findings represent? To answer this question one must first consider the counselor results in greater detail. The following section will discuss the major findings and integrate them with past research in the field. The major findings are discussed in three separate parts: (a) counselor results, (b) research question one, and (c) research question two.

Counselor Results and Limitations

There were 86 counselors of various ethnicities that were paired with 8,076 consumers from different culturally and linguistically diverse groups. This dataset created a novel way to measure the potential influence of counselor/consumer ethnic similarity and self-reported cultural competence on consumer case service and employment outcome variables. Most of the significant findings of this research exist at the counselor level in regards to the significant statistical differences in estimated means on the various subscale

scores of the MCI instrument. Prior research indicates that CLD counselors score higher than their Caucasian counterparts on total and subscale scores of the MCI (Bellini, 2003; Granello & Wheaton, 1998). In this dissertation, Hispanic counselors demonstrated the highest scores as well as the closest mean array across the four subscales. Given the large population of consumers in the state that are Hispanic, further research is needed to extrapolate this significance further. Qualitative sampling of Hispanic counselors who report high cultural competency ratings would be beneficial if it is triangulated with consumer input. Wheaton and Granello (1998) conducted small focus groups with counselors to understand their perspective on the construct of cultural competence. However, if consumers of these same counselors could provide feedback on service provision and employment outcome measures one could ascertain more complete picture of just how an abstract concept such as cultural competency is implemented in day to day activities of vocational counseling. Whether services are provided or not, and whether money is spent or not cannot be definitively equated with a consumer's success.

So, how does cultural competency influence vocational services outcomes? This study does not provide any definitive answers to that question. The construct of cultural competency is abstract and rather difficult to operationalize. However, understanding the nuances of each of the four domains of competence should be integral to all rehabilitation counselor education programs and ongoing training. The results of this study show only indistinct patterns of influence that cultural competency plays a role in service delivery and outcomes to consumers. While the most interesting results of this study come at the counselor level and the various significant differences in the subscale and total scores on the

MCI instrument, the results from both research questions offer interesting discussion for further research.

Research Question 1

This question asks whether consumers who are served by counselors who are similar in ethnicity versus clients served by counselors dissimilar in ethnicity differ significantly in terms of service provision and employment outcome. First, it is important to determine what it means to differ significantly in terms of service provision and employment outcome. For the purposes of this study, this researcher quantified "differ significantly" in terms of whether the service was provided or not provided and whether the outcome either was achieved or not or the means were statistically significantly different. If "differ significantly" means that consumers either received or did not receive the services, then the disparate patterns in the findings mean that one must fail to reject the null hypothesis because provision of a service does not always directly relate to similar vs. dissimilar consumer/counselor dyads. Some of the significant findings represent inverse relationships between match vs. mismatch and service/outcome variables. Therefore, one cannot conclude that "differ significantly" is a linear relationship implying success is based on whether consumers either received or did not receive services and that they received these services consistently from either counselors identical to them ethnically or received these services consistently from counselors that were not identical to them ethnically. If consumer/counselor dyads who are similar in ethnicity received different levels of service provision and/or substantially different outcomes one could then reject the null hypothesis

and conclude that ethnicity has a significant influence on the vocational rehabilitation counseling relationship. However, in retrospect this question was too ambiguous.

Another contention with this question concerns the argument that just receiving a service does not directly translate into a successful employment outcome for the consumer. It is the argument that correlation does not prove causation. The disparate results for this question indicate that it is not possible to create a clear relationship between service provision and successful employment outcome. Nor is it possible to clarify what if any influence similar ethnicity versus disparate ethnicity may have on the equation. The differential pattern of significant findings for this question illustrate instead that there is a multiplicity of factors that influence service provision and employment outcome and that consumer/counselor ethnicity is only one possible factor.

Further analysis utilizing different analytical methods such as logistical regression may provide additional insight. Other possibilities include collapsing the match mismatch groups into variables that consider all matched groups together and all mismatched groups together instead of breaking the analysis down into the specific ethnicity subgroups. This type of analysis might offer more global understanding of the concept of whether similar ethnicity or disparate ethnicity is a significant influence on the vocational rehabilitation process. Maybe it is not as important to look at the data in terms of which match groups if any are more successful than others, but just in terms of whether consumers/counselors that are similar or not in terms of ethnicity experience significantly different service provision and employment outcomes.

Research Question 2

This question focused specifically on whether there was a significant relationship between level of MCI total and subscale scores of counselors and degree of consumer service provision and employment outcome. Again, the pattern of results indicate that we must fail to reject the null hypothesis and conclude that there is not a significant relationship between MCI total and subscale scores of counselors and their provision of consumer services. Some variables showed greater significance for counselors with lower cultural competency whereas others showed significance for counselors with higher cultural competency. Therefore we must conclude that higher MCI self-report scores do not demonstrate any consistent predictive influence on consumer service provision and employment outcome. However, while this study failed to reject the null hypothesis for this question, the complexity of the results may be due in part to several significant limitations that will be discussed in the following section.

Limitations

The findings of this study must be interpreted with some discretion due to the limitations the fact that there were such disparate groups of ethnically similar vs. ethnically disparate individuals and that the study relied heavily on a self-report instrument. While chi-square is not negatively affected by small cell size, ANCOVA is and several of the groups had $n < 15$ which is normally considered the minimal sample level. Secondly, this study utilized the MCI, a self-report instrument, which although it purports to measure behavioral indices may be subject to the social desirability response set. Dr. Sodowsky indicates that it

may be beneficial include measures to account for this in research and several studies in the research literature did include measures to account for this (Matrone and Leahy, 2005).

Second, statistical conclusion validity may be an issue given the limited sample size of the counselor participants. According to Cook and Campbell (1979) “statistical conclusion validity refers to inferences about whether it is reasonable to presume co-variation given a specified alpha level and the obtained variances (p. 41)." Even though the overall sample sizes were roughly equivalent, sample sizes differed considerably in size across groups, which may have influenced the number of variables found to be statistically significant because the n value fell below 15 for one the match mismatch groups in question one (Match_Asian) .

Third, construct validity may have been compromised because the RSA-911 Case Service Reporting Manual (2006) does not clearly distinguish between race and ethnicity. Nor does the label of Other represent equivalent ethnicities. This was an oversight by this researcher in the construction of the demographic questionnaire for the rehabilitation counselors. After the questionnaire was developed and disseminated to the counselors, the ethnicity categories available for counselors to select were later determined not to match directly with the consumer ethnicity categories reported in the RSA-911 Case Service Reporting Manual. For example, American Indian/Alaskan native is a racial category that counselors can select for consumers, but that same category was not delineated as a selection for rehabilitation counselors to self-report on the MCI survey.

Another significant limitation in regards to construct validity is the fact that some case services and employment outcome variables are not clearly defined for the rehabilitation

counselor. This creates opportunity for multiple interpretations among VR counselors. Vocational rehabilitation counselors may not understand how to accurately input the service variables received, they might not have received training on how on the process works, or they simply may not consult with a case summary of services provided while they are completing the case record closure screens. Since the information regarding services provided is input solely at the time the case record is inactivated there is considerable possibility for error in accounting for services provided. The lack of consistency in coding of these variables creates significant inaccuracies.

It is important to note that another limitation is that often consumers work with multiple counselors over the course of their vocational plan. In addition, while the variables denoting services provided are input only by those counselors who are on record at the time of closure of the case file, another limitation arises in terms of determining which counselor provided which service at which time. Therefore, the only way to countermand this limitation would be to utilize other research methodologies such as qualitative interviews with consumers to triangulate the results.

An additional limitation pertains to generalizability of study results. Because consumer participants were not randomly selected it cannot be assumed that the findings of this study can be generalized to the entire population of CLD consumers that utilize vocational rehabilitation services. Expanding this study to look at other state agencies would be beneficial. In fact Bellini (2003) makes that suggestion as well. Sampling across various state agencies simultaneously might also help to ensure greater diversity in counselor population as well.

Another limitation to this study is that it focused on only one fiscal year of data. Many consumers' files extend over a period of several years due to the type of service or training that they are receiving; therefore looking at only one year may prove to be statistically different from other years. It may be helpful to follow a select number of consumers thru a longitudinal study given the dynamic nature of the construct of cultural competency. Following a consumer's experience over time would allow for not only the consumer's participation in the construction of a working paradigm for cultural competence; but it would enable researchers to capture the influence of multiple counselors upon a single case file given that many consumers change counselors several times over the course of their rehabilitation plan. This study was unable to utilize a number of counselor survey responses in the final counselor sample because of the inability to discern which caseload number belonged to which counselor at the point in time when the consumer's case file was inactivated from vocational rehabilitation services.

Finally, it is important to discuss the possibility of how the results may have been influenced by the presence of other factors or extraneous variables. Factors such as a counselor's familiarity with resources, expertise in particular areas of counseling, availability of resources, frequency of service availability and logistics involved in coordinating resources all have significant impact on the quality of rehabilitation services received. Given the variety of extraneous influences, it is highly likely that CLD consumers may simply receive dissimilar levels of the same case services, dissimilar access to those same services or dissimilar frequency based upon the expertise of the VR counselor or service provider. The CA RSA-911 dataset does not take into account the quality or quantity in which specific case

services is provided. The dataset also does not contain any consumer input into the quality or quantity of serviced provided either, as the counselor is the only individual to input the data.

Implications for Practice

The purpose of this study was to investigate relationships among customer demographics, case service, and employment outcome variables and counselor self-report of cultural competence. Given the studies' limitations, implications for practitioners, which are discussed in the following section, but they are suggested with caution.

Due to the limited research in the area of cultural competence, it may not be possible to make recommendations under the guise of best practices; however, this study may serve as a starting point for practitioners. To begin, it is important to recognize that there has been a significant discrepancy the understanding of cultural competence by practicing vocational rehabilitation counselors. Further qualitative studies that explore counselor as well as consumer perspectives may be valuable. Also, expanding the concept of match mismatched counselor/consumer groups with larger sample groups may be beneficial. It may also be important to explore a discourse on culturally competent service provision at the consumer level alone. Whether a counselor exhibits culturally responsive or culturally competent service provision can only truly be evaluated by the recipient of such services. The LSVRP dataset mentioned earlier in the research literature does not contain consumer satisfaction questions as it relates to culturally responsive service provision. Therefore, it is important to recognize that there has been a significant lapse in exploring culturally competent service provision from the perspective of the rehabilitation consumer.

Next, educators and rehabilitation counselors may benefit from ongoing training and development to identify effective strategies to increase culturally responsive rehabilitation counseling. Prior research (Smart & Smart, 1992) strongly emphasizes training as an integral part of providing culturally responsive services. While this study collected demographic information on rehabilitation counselors and their education level, specific questions pertaining to ongoing training or professional development were not asked. Again, this was an oversight on the part of the researcher at the time that the demographic questionnaire was disseminated to rehabilitation counselors for completion.

There also are several significant implications for practitioners when it comes to evaluating whether bias exists within the counseling relationship. Although case services are determined on an individual level, VR counselors may experience bias towards certain individuals/consumers for extraneous reasons that may or may not be related to race or ethnicity. This bias may influence their desire to provide support services to an individual who truly needs guidance. Also, there are many factors that extraneously influence the quality of the counseling relationship that cannot be accounted for in a study that focuses specifically on quantitative measures. Bias, discrimination, stereotype and other negative influences can only be explored through qualitative methodologies that consider both consumer and counselor input.

A final implication for practitioners regards the issue of race. The RSA database has only a very narrow categorization of race and counselors are only able to select Hispanic as an ethnicity following selection of one of the other categories for race. Race and ethnicity are dynamic constructs that encompass far more than a counselor or consumer's skin color and it

is important to consider redefining how these categories are classified in the RSA dataset so that unique identifiers such as language, and multiple racial categories could be selected. Counselors may or may not ask consumers which race they self select before entering the demographic information into the case record.

Future Research

The research on cultural competence is minimal at best. This study offers some promising information at the counselor level in terms of understanding the construct of culturally competency. However, whether or not distinct patterns of inferential correlations can even be suggested given the findings remains to be seen over time with more research being conducted at the specific level of counselor/client dyads. Based upon the limited availability of literature in the field of cultural competency, several recommendations for future research are presented in the following section.

First, there is a critical need for continued research in the area of cultural competency. Exploring other RSA-911 data years, replicating this study design with other states, as well as expanding the research on counselor/consumer similarity would be very helpful. This research study presents rather inconclusive data to indicate that there may or may not be a relationship between counselors and consumers who are similar or dissimilar in ethnicity, how culturally responsive they are in their service provision and whether this responsive counseling creates higher quality service provision or more successful employment outcomes. Second, semi-structured interviews with VR customers on their understanding and perspective regarding cultural competence may provide a greater understanding of the types of supports that are needed to for culturally and linguistically diverse individuals to obtain

successful employment outcomes. Studies like these are similar to existent surveys of consumer satisfaction with the VR program, but there is a need to address cultural competence specifically within the consumer satisfaction programs established within state agencies.

Appendix A

Match_Caucasian

χ^2 Frequency Tables

Job Search

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_CAUC * jobsearch_assist_recode	7534	100.0%	0	.0%	7534	100.0%

MATCH_CAUC * jobsearch_assist_recode Crosstabulation

			jobsearch_assist_recode		
			.00	1.00	Total
MATCH_CAUC	.00	Count	2206	946	3152
		Expected Count	2205.2	946.8	3152.0
		% within MATCH_CAUC	70.0%	30.0%	100.0%
		% within jobsearch_assist_recode	41.9%	41.8%	41.8%
	1.00	Count	3065	1317	4382
		Expected Count	3065.8	1316.2	4382.0
		% within MATCH_CAUC	69.9%	30.1%	100.0%
		% within jobsearch_assist_recode	58.1%	58.2%	58.2%
Total		Count	5271	2263	7534
		Expected Count	5271.0	2263.0	7534.0
		% within MATCH_CAUC	70.0%	30.0%	100.0%
		% within jobsearch_assist_recode	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.002[b]	1	.969		
Continuity Correction [a]	.000	1	.989		
Likelihood Ratio	.002	1	.969		
Fisher's Exact Test				.980	.495
Linear-by-Linear Association	.002	1	.969		
N of Valid Cases	7534				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 946.77.

Maintenance

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_CAUC * maintenance_ dichotomous	7534	100.0%	0	.0%	7534	100.0%

MATCH_CAUC * maintenance_dichotomous Crosstabulation

			maintenance_ dichotomous		
			.00	1.00	Total
MATCH_CAUC	.00	Count	2987	165	3152
		Expected Count	3002.2	149.8	3152.0
		% within MATCH_CAUC	94.8%	5.2%	100.0%
		% within maintenance_ dichotomous	41.6%	46.1%	41.8%
	1.00	Count	4189	193	4382
		Expected Count	4173.8	208.2	4382.0
		% within MATCH_CAUC	95.6%	4.4%	100.0%
		% within maintenance_ dichotomous	58.4%	53.9%	58.2%
Total		Count	7176	358	7534
		Expected Count	7176.0	358.0	7534.0
		% within MATCH_CAUC	95.2%	4.8%	100.0%
		% within maintenance_ dichotomous	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.793[b]	1	.095		
Continuity Correction [a]	2.613	1	.106		
Likelihood Ratio	2.771	1	.096		
Fisher's Exact Test				.100	.053
Linear-by-Linear Association	2.793	1	.095		
N of Valid Cases	7534				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 149. 78.

Rehabilitation Technology

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_CAUC * rehab_ tech_dichotmous	7534	100.0%	0	.0%	7534	100.0%

MATCH_CAUC * rehab_tech_dichotmous Crosstabulation

			rehab_tech_ dichotmous		
			.00	1.00	Total
MATCH_CAUC	.00	Count	3018	134	3152
		Expected Count	2983.4	168.6	3152.0
		% within MATCH_CAUC	95.7%	4.3%	100.0%
		% within rehab_tech_ dichotmous	42.3%	33.3%	41.8%
	1.00	Count	4113	269	4382
		Expected Count	4147.6	234.4	4382.0
		% within MATCH_CAUC	93.9%	6.1%	100.0%
		% within rehab_tech_ dichotmous	57.7%	66.7%	58.2%
Total		Count	7131	403	7534
		Expected Count	7131.0	403.0	7534.0
		% within MATCH_CAUC	94.7%	5.3%	100.0%
		% within rehab_tech_ dichotmous	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	12.900[b]	1	.000		
Continuity Correction [a]	12.530	1	.000		
Likelihood Ratio	13.208	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	12.898	1	.000		
N of Valid Cases	7534				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 168. 60.

College

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_CAUC * college_dicho	7534	100.0%	0	.0%	7534	100.0%

MATCH_CAUC * college_dicho Crosstabulation

			college_dicho		
			.00	1.00	Total
MATCH_CAUC	.00	Count	2790	362	3152
		Expected Count	2735.3	416.7	3152.0
		% within MATCH_CAUC	88.5%	11.5%	100.0%
		% within college_dicho	42.7%	36.3%	41.8%
	1.00	Count	3748	634	4382
		Expected Count	3802.7	579.3	4382.0
		% within MATCH_CAUC	85.5%	14.5%	100.0%
		% within college_dicho	57.3%	63.7%	58.2%
Total		Count	6538	996	7534
		Expected Count	6538.0	996.0	7534.0
		% within MATCH_CAUC	86.8%	13.2%	100.0%
		% within college_dicho	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	14.224[b]	1	.000		
Continuity Correction [a]	13.966	1	.000		
Likelihood Ratio	14.402	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	14.223	1	.000		
N of Valid Cases	7534				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 416.70.

Competitive Employment

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_CAUC * Competitive employment	7534	100.0%	0	.0%	7534	100.0%

MATCH_CAUC * Competitive employment Crosstabulation

			Competitive employment		
			No	Yes	Total
MATCH_CAUC	.00	Count	3145	7	3152
		Expected Count	3145.3	6.7	3152.0
		% within MATCH_CAUC	99.8%	.2%	100.0%
		% within Competitive employment	41.8%	43.8%	41.8%
	1.00	Count	4373	9	4382
		Expected Count	4372.7	9.3	4382.0
		% within MATCH_CAUC	99.8%	.2%	100.0%
		% within Competitive employment	58.2%	56.3%	58.2%
Total		Count	7518	16	7534
		Expected Count	7518.0	16.0	7534.0
		% within MATCH_CAUC	99.8%	.2%	100.0%
		% within Competitive employment	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.024[b]	1	.877		
Continuity Correction [a]	.000	1	1.000		
Likelihood Ratio	.024	1	.877		
Fisher's Exact Test				1.000	.533
Linear-by-Linear Association	.024	1	.877		
N of Valid Cases	7534				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6. 69.

Appendix B

Match_African American

χ^2 Frequency Tables

Job search

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_AA * jobsearch_ assist_recode	156	100.0%	0	.0%	156	100.0%

MATCH_AA * jobsearch_assist_recode Crosstabulation

			jobsearch_assist_ recode		
			.00	1.00	Total
MATCH_AA	.00	Count	35	45	80
		Expected Count	51.3	28.7	80.0
		% within MATCH_AA	43.8%	56.3%	100.0%
		% within jobsearch_ assist_recode	35.0%	80.4%	51.3%
	1.00	Count	65	11	76
		Expected Count	48.7	27.3	76.0
		% within MATCH_AA	85.5%	14.5%	100.0%
		% within jobsearch_ assist_recode	65.0%	19.6%	48.7%
Total		Count	100	56	156
		Expected Count	100.0	56.0	156.0
		% within MATCH_AA	64.1%	35.9%	100.0%
		% within jobsearch_ assist_recode	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	29.560[b]	1	.000		
Continuity Correction [a]	27.772	1	.000		
Likelihood Ratio	31.184	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	29.370	1	.000		
N of Valid Cases	156				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 27. 28.

Maintenance

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_AA * maintenance_ dichotomous	156	100.0%	0	.0%	156	100.0%

MATCH_AA * maintenance_dichotomous Crosstabulation

			maintenance_ dichotomous		
			.00	1.00	Total
MATCH_AA	.00	Count	78	2	80
		Expected Count	78.5	1.5	80.0
		% within MATCH_AA	97.5%	2.5%	100.0%
		% within maintenance_ dichotomous	51.0%	66.7%	51.3%
	1.00	Count	75	1	76
		Expected Count	74.5	1.5	76.0
		% within MATCH_AA	98.7%	1.3%	100.0%
		% within maintenance_ dichotomous	49.0%	33.3%	48.7%
Total		Count	153	3	156
		Expected Count	153.0	3.0	156.0
		% within MATCH_AA	98.1%	1.9%	100.0%
		% within maintenance_ dichotomous	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.290[b]	1	.590		
Continuity Correction [a]	.000	1	1.000		
Likelihood Ratio	.296	1	.586		
Fisher's Exact Test				1.000	.519
Linear-by-Linear Association	.288	1	.592		
N of Valid Cases	156				

a. Computed only for a 2x2 table

b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1. 46.

Rehabilitation Technology

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_AA * rehab_ tech_dichotmous	156	100.0%	0	.0%	156	100.0%

MATCH_AA * rehab_tech_dichotmous Crosstabulation

			rehab_tech_ dichotmous		
			.00	1.00	Total
MATCH_AA	.00	Count	76	4	80
		Expected Count	76.4	3.6	80.0
		% within MATCH_AA	95.0%	5.0%	100.0%
		% within rehab_ tech_dichotmous	51.0%	57.1%	51.3%
	1.00	Count	73	3	76
		Expected Count	72.6	3.4	76.0
		% within MATCH_AA	96.1%	3.9%	100.0%
		% within rehab_ tech_dichotmous	49.0%	42.9%	48.7%
Total		Count	149	7	156
		Expected Count	149.0	7.0	156.0
		% within MATCH_AA	95.5%	4.5%	100.0%
		% within rehab_ tech_dichotmous	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.101[b]	1	.751		
Continuity Correction [a]	.000	1	1.000		
Likelihood Ratio	.101	1	.750		
Fisher's Exact Test				1.000	.529
Linear-by-Linear Association	.100	1	.752		
N of Valid Cases	156				

a. Computed only for a 2x2 table

b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3. 41.

College

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_AA * college_dicho	156	100.0%	0	.0%	156	100.0%

MATCH_AA * college_dicho Crosstabulation

			college_dicho		
			.00	1.00	Total
MATCH_AA	.00	Count	72	8	80
		Expected Count	70.8	9.2	80.0
		% within MATCH_AA	90.0%	10.0%	100.0%
		% within college_dicho	52.2%	44.4%	51.3%
	1.00	Count	66	10	76
		Expected Count	67.2	8.8	76.0
		% within MATCH_AA	86.8%	13.2%	100.0%
		% within college_dicho	47.8%	55.6%	48.7%
Total		Count	138	18	156
		Expected Count	138.0	18.0	156.0
		% within MATCH_AA	88.5%	11.5%	100.0%
		% within college_dicho	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.381[b]	1	.537		
Continuity Correction[a]	.134	1	.714		
Likelihood Ratio	.381	1	.537		
Fisher's Exact Test				.620	.357
Linear-by-Linear Association	.378	1	.538		
N of Valid Cases	156				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8. 77.

Competitive Employment

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_AA * Competitive employment	156	100.0%	0	.0%	156	100.0%

MATCH_AA * Competitive employment Crosstabulation

			Competitive employment		
			No	Yes	Total
MATCH_AA	.00	Count	78	2	80
		Expected Count	79.0	1.0	80.0
		% within MATCH_AA	97.5%	2.5%	100.0%
		% within Competitive employment	50.6%	100.0%	51.3%
	1.00	Count	76	0	76
		Expected Count	75.0	1.0	76.0
		% within MATCH_AA	100.0%	.0%	100.0%
		% within Competitive employment	49.4%	.0%	48.7%
Total		Count	154	2	156
		Expected Count	154.0	2.0	156.0
		% within MATCH_AA	98.7%	1.3%	100.0%
		% within Competitive employment	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.925[b]	1	.165		
Continuity Correction [a]	.456	1	.499		
Likelihood Ratio	2.696	1	.101		
Fisher's Exact Test				.497	.261
Linear-by-Linear Association	1.912	1	.167		
N of Valid Cases	156				

a. Computed only for a 2x2 table

b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .97.

Appendix C

Match_Asian

χ^2 Frequency Tables

Jobsearch

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_ASIAN * jobsearch_assist_recode	24	100.0%	0	.0%	24	100.0%

MATCH_ASIAN * jobsearch_assist_recode Crosstabulation

			jobsearch_assist_recode		
			.00	1.00	Total
MATCH_ASIAN	.00	Count	3	9	12
		Expected Count	6.5	5.5	12.0
		% within MATCH_ASIAN	25.0%	75.0%	100.0%
		% within jobsearch_ assist_recode	23.1%	81.8%	50.0%
	1.00	Count	10	2	12
		Expected Count	6.5	5.5	12.0
		% within MATCH_ASIAN	83.3%	16.7%	100.0%
		% within jobsearch_ assist_recode	76.9%	18.2%	50.0%
Total		Count	13	11	24
		Expected Count	13.0	11.0	24.0
		% within MATCH_ASIAN	54.2%	45.8%	100.0%
		% within jobsearch_ assist_recode	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.224[b]	1	.004		
Continuity Correction [a]	6.042	1	.014		
Likelihood Ratio	8.795	1	.003		
Fisher's Exact Test				.012	.006
Linear-by-Linear Association	7.881	1	.005		
N of Valid Cases	24				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5. 50.

Maintenance

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_ASIAN * maintenance_ dichotomous	24	100.0%	0	.0%	24	100.0%

MATCH_ASIAN * maintenance_dichotomous Crosstabulation

			maintenance_ dichotomous	
			.00	Total
MATCH_ASIAN	.00	Count	12	12
		Expected Count	12.0	12.0
		% within MATCH_ASIAN	100.0%	100.0%
		% within maintenance_ dichotomous	50.0%	50.0%
	1.00	Count	12	12
		Expected Count	12.0	12.0
		% within MATCH_ASIAN	100.0%	100.0%
		% within maintenance_ dichotomous	50.0%	50.0%
Total		Count	24	24
		Expected Count	24.0	24.0
		% within MATCH_ASIAN	100.0%	100.0%
		% within maintenance_ dichotomous	100.0%	100.0%

Chi-Square Tests

	Value
Pearson Chi-Square	.[a]
N of Valid Cases	24

a. No statistics are computed because maintenance_dichotomous is a constant.

Rehabilitation Technology

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_ASIAN * rehab_ tech_dichotmous	24	100.0%	0	.0%	24	100.0%

MATCH_ASIAN * rehab_tech_dichotmous Crosstabulation

			rehab_tech_ dichotmous	
			.00	Total
MATCH_ASIAN	.00	Count	12	12
		Expected Count	12.0	12.0
		% within MATCH_ASIAN	100.0%	100.0%
		% within rehab_tech_ dichotmous	50.0%	50.0%
	1.00	Count	12	12
		Expected Count	12.0	12.0
		% within MATCH_ASIAN	100.0%	100.0%
		% within rehab_tech_ dichotmous	50.0%	50.0%
Total		Count	24	24
		Expected Count	24.0	24.0
		% within MATCH_ASIAN	100.0%	100.0%
		% within rehab_tech_ dichotmous	100.0%	100.0%

Chi-Square Tests

	Value
Pearson Chi-Square	.[a]
N of Valid Cases	24

a. No statistics are computed because rehab_tech_dichotmous is a constant.

College

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_ASIAN * college_dicho	24	100.0%	0	.0%	24	100.0%

MATCH_ASIAN * college_dicho Crosstabulation

			college_dicho		
			.00	1.00	Total
MATCH_ASIAN	.00	Count	12	0	12
		Expected Count	11.0	1.0	12.0
		% within MATCH_ASIAN	100.0%	.0%	100.0%
		% within college_dicho	54.5%	.0%	50.0%
	1.00	Count	10	2	12
		Expected Count	11.0	1.0	12.0
		% within MATCH_ASIAN	83.3%	16.7%	100.0%
		% within college_dicho	45.5%	100.0%	50.0%
Total		Count	22	2	24
		Expected Count	22.0	2.0	24.0
		% within MATCH_ASIAN	91.7%	8.3%	100.0%
		% within college_dicho	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.182[b]	1	.140		
Continuity Correction [a]	.545	1	.460		
Likelihood Ratio	2.955	1	.086		
Fisher's Exact Test				.478	.239
Linear-by-Linear Association	2.091	1	.148		
N of Valid Cases	24				

a. Computed only for a 2x2 table

b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.00.

Competitive Employment

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_ASIAN * Competitive employment	24	100.0%	0	.0%	24	100.0%

MATCH_ASIAN * Competitive employment Crosstabulation

			Competitive employment		
			No	Yes	Total
MATCH_ASIAN	.00	Count	11	1	12
		Expected Count	11.5	.5	12.0
		% within MATCH_ASIAN	91.7%	8.3%	100.0%
		% within Competitive employment	47.8%	100.0%	50.0%
	1.00	Count	12	0	12
		Expected Count	11.5	.5	12.0
		% within MATCH_ASIAN	100.0%	.0%	100.0%
		% within Competitive employment	52.2%	.0%	50.0%
Total		Count	23	1	24
		Expected Count	23.0	1.0	24.0
		% within MATCH_ASIAN	95.8%	4.2%	100.0%
		% within Competitive employment	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.043[b]	1	.307		
Continuity Correction [a]	.000	1	1.000		
Likelihood Ratio	1.430	1	.232		
Fisher's Exact Test				1.000	.500
Linear-by-Linear Association	1.000	1	.317		
N of Valid Cases	24				

a. Computed only for a 2x2 table

b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .50.

Appendix D

Match_Hispanic

χ^2 Frequency Tables

Jobsearch

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_HIS * jobsearch_ assist_recode	613	100.0%	0	.0%	613	100.0%

MATCH_HIS * jobsearch_assist_recode Crosstabulation

			jobsearch_assist_ recode		
			.00	1.00	Total
MATCH_HIS	.00	Count	216	92	308
		Expected Count	207.5	100.5	308.0
		% within MATCH_HIS	70.1%	29.9%	100.0%
		% within jobsearch_ assist_recode	52.3%	46.0%	50.2%
	1.00	Count	197	108	305
		Expected Count	205.5	99.5	305.0
		% within MATCH_HIS	64.6%	35.4%	100.0%
		% within jobsearch_ assist_recode	47.7%	54.0%	49.8%
Total		Count	413	200	613
		Expected Count	413.0	200.0	613.0
		% within MATCH_HIS	67.4%	32.6%	100.0%
		% within jobsearch_ assist_recode	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.139[b]	1	.144		
Continuity Correction [a]	1.895	1	.169		
Likelihood Ratio	2.141	1	.143		
Fisher's Exact Test				.168	.084
Linear-by-Linear Association	2.136	1	.144		
N of Valid Cases	613				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 99.51.

Maintenance

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_HIS * maintenance_ dichotomous	613	100.0%	0	.0%	613	100.0%

MATCH_HIS * maintenance_dichotomous Crosstabulation

			maintenance_ dichotomous		
			.00	1.00	Total
MATCH_HIS	.00	Count	290	18	308
		Expected Count	293.9	14.1	308.0
		% within MATCH_HIS	94.2%	5.8%	100.0%
		% within maintenance_ dichotomous	49.6%	64.3%	50.2%
	1.00	Count	295	10	305
		Expected Count	291.1	13.9	305.0
		% within MATCH_HIS	96.7%	3.3%	100.0%
		% within maintenance_ dichotomous	50.4%	35.7%	49.8%
Total		Count	585	28	613
		Expected Count	585.0	28.0	613.0
		% within MATCH_HIS	95.4%	4.6%	100.0%
		% within maintenance_ dichotomous	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.314[b]	1	.128		
Continuity Correction [a]	1.763	1	.184		
Likelihood Ratio	2.346	1	.126		
Fisher's Exact Test				.175	.092
Linear-by-Linear Association	2.310	1	.129		
N of Valid Cases	613				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13. 93.

Rehabilitation Technology

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_HIS * rehab_ tech_dichotmous	613	100.0%	0	.0%	613	100.0%

MATCH_HIS * rehab_tech_dichotmous Crosstabulation

			rehab_tech_ dichotmous		
			.00	1.00	Total
MATCH_HIS	.00	Count	297	11	308
		Expected Count	300.0	8.0	308.0
		% within MATCH_HIS	96.4%	3.6%	100.0%
		% within rehab_tech_ dichotmous	49.7%	68.8%	50.2%
	1.00	Count	300	5	305
		Expected Count	297.0	8.0	305.0
		% within MATCH_HIS	98.4%	1.6%	100.0%
		% within rehab_tech_ dichotmous	50.3%	31.3%	49.8%
Total		Count	597	16	613
		Expected Count	597.0	16.0	613.0
		% within MATCH_HIS	97.4%	2.6%	100.0%
		% within rehab_tech_ dichotmous	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.250[b]	1	.134		
Continuity Correction [a]	1.555	1	.212		
Likelihood Ratio	2.306	1	.129		
Fisher's Exact Test				.204	.106
Linear-by-Linear Association	2.247	1	.134		
N of Valid Cases	613				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7. 96.

Competitive Employment

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_HIS * college_dicho	613	100.0%	0	.0%	613	100.0%

MATCH_HIS * college_dicho Crosstabulation

			college_dicho		
			.00	1.00	Total
MATCH_HIS	.00	Count	265	43	308
		Expected Count	271.8	36.2	308.0
		% within MATCH_HIS	86.0%	14.0%	100.0%
		% within college_dicho	49.0%	59.7%	50.2%
	1.00	Count	276	29	305
		Expected Count	269.2	35.8	305.0
		% within MATCH_HIS	90.5%	9.5%	100.0%
		% within college_dicho	51.0%	40.3%	49.8%
Total		Count	541	72	613
		Expected Count	541.0	72.0	613.0
		% within MATCH_HIS	88.3%	11.7%	100.0%
		% within college_dicho	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.931[b]	1	.087		
Continuity Correction [a]	2.517	1	.113		
Likelihood Ratio	2.949	1	.086		
Fisher's Exact Test				.103	.056
Linear-by-Linear Association	2.926	1	.087		
N of Valid Cases	613				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 35.82.

Competitive Employment

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_HIS * Competitive employment	613	100.0%	0	.0%	613	100.0%

MATCH_HIS * Competitive employment Crosstabulation

			Competitive employment		
			No	Yes	Total
MATCH_HIS	.00	Count	306	2	308
		Expected Count	306.5	1.5	308.0
		% within MATCH_HIS	99.4%	.6%	100.0%
		% within Competitive employment	50.2%	66.7%	50.2%
	1.00	Count	304	1	305
		Expected Count	303.5	1.5	305.0
		% within MATCH_HIS	99.7%	.3%	100.0%
		% within Competitive employment	49.8%	33.3%	49.8%
Total		Count	610	3	613
		Expected Count	610.0	3.0	613.0
		% within MATCH_HIS	99.5%	.5%	100.0%
		% within Competitive employment	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.325[b]	1	.568		
Continuity Correction [a]	.000	1	1.000		
Likelihood Ratio	.332	1	.565		
Fisher's Exact Test				1.000	.504
Linear-by-Linear Association	.325	1	.569		
N of Valid Cases	613				

a. Computed only for a 2x2 table

b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1. 49.

Appendix E

Match_Other

χ^2 Frequency Tables

Job search

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_OTHER * jobsearch_assist_recode	440	100.0%	0	.0%	440	100.0%

MATCH_OTHER * jobsearch_assist_recode Crosstabulation

			jobsearch_assist_recode		
			.00	1.00	Total
MATCH_OTHER	.00	Count	166	77	243
		Expected Count	164.6	78.4	243.0
		% within MATCH_OTHER	68.3%	31.7%	100.0%
		% within jobsearch_assist_recode	55.7%	54.2%	55.2%
	1.00	Count	132	65	197
		Expected Count	133.4	63.6	197.0
		% within MATCH_OTHER	67.0%	33.0%	100.0%
		% within jobsearch_assist_recode	44.3%	45.8%	44.8%
Total		Count	298	142	440
		Expected Count	298.0	142.0	440.0
		% within MATCH_OTHER	67.7%	32.3%	100.0%
		% within jobsearch_assist_recode	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.085[b]	1	.770		
Continuity Correction [a]	.036	1	.850		
Likelihood Ratio	.085	1	.771		
Fisher's Exact Test				.838	.425
Linear-by-Linear Association	.085	1	.771		
N of Valid Cases	440				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 63.58.

Maintenance

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_OTHER * maintenance_ dichotomous	440	100.0%	0	.0%	440	100.0%

MATCH_OTHER * maintenance_dichotomous Crosstabulation

			maintenance_ dichotomous		
			.00	1.00	Total
MATCH_OTHER	.00	Count	236	7	243
		Expected Count	235.3	7.7	243.0
		% within MATCH_OTHER	97.1%	2.9%	100.0%
		% within maintenance_ dichotomous	55.4%	50.0%	55.2%
	1.00	Count	190	7	197
		Expected Count	190.7	6.3	197.0
		% within MATCH_OTHER	96.4%	3.6%	100.0%
		% within maintenance_ dichotomous	44.6%	50.0%	44.8%
Total		Count	426	14	440
		Expected Count	426.0	14.0	440.0
		% within MATCH_OTHER	96.8%	3.2%	100.0%
		% within maintenance_ dichotomous	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.160[b]	1	.689		
Continuity Correction [a]	.016	1	.899		
Likelihood Ratio	.159	1	.690		
Fisher's Exact Test				.787	.446
Linear-by-Linear Association	.159	1	.690		
N of Valid Cases	440				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6. 27.

Rehabilitation Technology

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_OTHER * rehab_tech_dichotmous	440	100.0%	0	.0%	440	100.0%

MATCH_OTHER * rehab_tech_dichotmous Crosstabulation

			rehab_tech_ dichotmous		
			.00	1.00	Total
MATCH_OTHER	.00	Count	230	13	243
		Expected Count	233.6	9.4	243.0
		% within MATCH_OTHER	94.7%	5.3%	100.0%
		% within rehab_tech_ dichotmous	54.4%	76.5%	55.2%
	1.00	Count	193	4	197
		Expected Count	189.4	7.6	197.0
		% within MATCH_OTHER	98.0%	2.0%	100.0%
		% within rehab_tech_ dichotmous	45.6%	23.5%	44.8%
Total		Count	423	17	440
		Expected Count	423.0	17.0	440.0
		% within MATCH_OTHER	96.1%	3.9%	100.0%
		% within rehab_tech_ dichotmous	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.227[b]	1	.072		
Continuity Correction [a]	2.396	1	.122		
Likelihood Ratio	3.439	1	.064		
Fisher's Exact Test				.085	.058
Linear-by-Linear Association	3.220	1	.073		
N of Valid Cases	440				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7. 61.

College

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_OTHER * college_dicho	440	100.0%	0	.0%	440	100.0%

MATCH_OTHER * college_dicho Crosstabulation

			college_dicho		
			.00	1.00	Total
MATCH_OTHER	.00	Count	214	29	243
		Expected Count	217.6	25.4	243.0
		% within MATCH_OTHER	88.1%	11.9%	100.0%
		% within college_dicho	54.3%	63.0%	55.2%
	1.00	Count	180	17	197
		Expected Count	176.4	20.6	197.0
		% within MATCH_OTHER	91.4%	8.6%	100.0%
		% within college_dicho	45.7%	37.0%	44.8%
Total		Count	394	46	440
		Expected Count	394.0	46.0	440.0
		% within MATCH_OTHER	89.5%	10.5%	100.0%
		% within college_dicho	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.269[b]	1	.260		
Continuity Correction [a]	.941	1	.332		
Likelihood Ratio	1.287	1	.257		
Fisher's Exact Test				.277	.166
Linear-by-Linear Association	1.266	1	.260		
N of Valid Cases	440				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 20.60.

Competitive Employment

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MATCH_OTHER * Competitive employment	440	100.0%	0	.0%	440	100.0%

MATCH_OTHER * Competitive employment Crosstabulation

			Competitive employment		
			No	Yes	Total
MATCH_OTHER	.00	Count	242	1	243
		Expected Count	242.4	.6	243.0
		% within MATCH_OTHER	99.6%	.4%	100.0%
		% within Competitive employment	55.1%	100.0%	55.2%
	1.00	Count	197	0	197
		Expected Count	196.6	.4	197.0
		% within MATCH_OTHER	100.0%	.0%	100.0%
		% within Competitive employment	44.9%	.0%	44.8%
Total		Count	439	1	440
		Expected Count	439.0	1.0	440.0
		% within MATCH_OTHER	99.8%	.2%	100.0%
		% within Competitive employment	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.813[b]	1	.367		
Continuity Correction [a]	.000	1	1.000		
Likelihood Ratio	1.189	1	.275		
Fisher's Exact Test				1.000	.552
Linear-by-Linear Association	.811	1	.368		
N of Valid Cases	440				

a. Computed only for a 2x2 table

b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .45.

Appendix F

χ^2 Frequency Tables

MCI_TOT_MEDIAN

Rehabilitation Technology

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MCI_TOT_MEDIAN * rehab_tech_dichotmous	8076	100.0%	0	.0%	8076	100.0%

MCI_TOT_MEDIAN * rehab_tech_dichotmous Crosstabulation

			rehab_tech_ dichotmous		
			.00	1.00	Total
MCI_TOT_MEDIAN	.00	Count	4219	240	4459
		Expected Count	4231.0	228.0	4459.0
		% within MCI_ TOT_MEDIAN	94.6%	5.4%	100.0%
		% within rehab_ tech_dichotmous	55.1%	58.1%	55.2%
	1.00	Count	3444	173	3617
		Expected Count	3432.0	185.0	3617.0
		% within MCI_ TOT_MEDIAN	95.2%	4.8%	100.0%
		% within rehab_ tech_dichotmous	44.9%	41.9%	44.8%
Total		Count	7663	413	8076
		Expected Count	7663.0	413.0	8076.0
		% within MCI_ TOT_MEDIAN	94.9%	5.1%	100.0%
		% within rehab_ tech_dichotmous	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.479[b]	1	.224		
Continuity Correction [a]	1.358	1	.244		
Likelihood Ratio	1.485	1	.223		
Fisher's Exact Test				.243	.122
Linear-by-Linear Association	1.478	1	.224		
N of Valid Cases	8076				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 184. 97.

Maintenance

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MCI_TOT_MEDIAN * maintenance_ dichotomous	8076	100.0%	0	.0%	8076	100.0%

MCI_TOT_MEDIAN * maintenance_dichotomous Crosstabulation

			maintenance_ dichotomous		
			.00	1.00	Total
MCI_TOT_MEDIAN	.00	Count	4248	211	4459
		Expected Count	4253.6	205.4	4459.0
		% within MCI_TOT_ MEDIAN	95.3%	4.7%	100.0%
		% within maintenance_ dichotomous	55.1%	56.7%	55.2%
	1.00	Count	3456	161	3617
		Expected Count	3450.4	166.6	3617.0
		% within MCI_TOT_ MEDIAN	95.5%	4.5%	100.0%
		% within maintenance_ dichotomous	44.9%	43.3%	44.8%
Total		Count	7704	372	8076
		Expected Count	7704.0	372.0	8076.0
		% within MCI_TOT_ MEDIAN	95.4%	4.6%	100.0%
		% within maintenance_ dichotomous	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.358[b]	1	.549		
Continuity Correction [a]	.297	1	.586		
Likelihood Ratio	.359	1	.549		
Fisher's Exact Test				.558	.293
Linear-by-Linear Association	.358	1	.549		
N of Valid Cases	8076				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 166. 61.

Jobsearch

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MCI_TOT_MEDIAN * jobsearch_assist_recode	8076	100.0%	0	.0%	8076	100.0%

MCI_TOT_MEDIAN * jobsearch_assist_recode Crosstabulation

			jobsearch_assist_recode		
			.00	1.00	Total
MCI_TOT_MEDIAN	.00	Count	3215	1244	4459
		Expected Count	3120.6	1338.4	4459.0
		% within MCI_TOT_MEDIAN	72.1%	27.9%	100.0%
		% within jobsearch_assist_recode	56.9%	51.3%	55.2%
	1.00	Count	2437	1180	3617
		Expected Count	2531.4	1085.6	3617.0
		% within MCI_TOT_MEDIAN	67.4%	32.6%	100.0%
		% within jobsearch_assist_recode	43.1%	48.7%	44.8%
Total		Count	5652	2424	8076
		Expected Count	5652.0	2424.0	8076.0
		% within MCI_TOT_MEDIAN	70.0%	30.0%	100.0%
		% within jobsearch_assist_recode	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	21.226[b]	1	.000		
Continuity Correction [a]	21.002	1	.000		
Likelihood Ratio	21.176	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	21.223	1	.000		
N of Valid Cases	8076				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 1085.64.

College

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MCI_TOT_MEDIAN * college_dicho	8076	100.0%	0	.0%	8076	100.0%

MCI_TOT_MEDIAN * college_dicho Crosstabulation

			college_dicho		
			.00	1.00	Total
MCI_TOT_MEDIAN	.00	Count	3827	632	4459
		Expected Count	3877.6	581.4	4459.0
		% within MCI_TOT_ MEDIAN	85.8%	14.2%	100.0%
		% within college_dicho	54.5%	60.0%	55.2%
	1.00	Count	3196	421	3617
		Expected Count	3145.4	471.6	3617.0
		% within MCI_TOT_ MEDIAN	88.4%	11.6%	100.0%
		% within college_dicho	45.5%	40.0%	44.8%
Total		Count	7023	1053	8076
		Expected Count	7023.0	1053.0	8076.0
		% within MCI_TOT_ MEDIAN	87.0%	13.0%	100.0%
		% within college_dicho	100.0%	100.0%	100.0%

Chi-Square Tests

		Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square		11.310[b]	1	.001		
Continuity Correction	[a]	11.088	1	.001		
Likelihood Ratio		11.392	1	.001		
Fisher's Exact Test					.001	.000
Linear-by-Linear Association		11.309	1	.001		
N of Valid Cases		8076				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 471. 61.

Competitive Employment

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MCI_TOT_MEDIAN * Competitive employment	8076	100.0%	0	.0%	8076	100.0%

MCI_TOT_MEDIAN * Competitive employment Crosstabulation

			Competitive employment		
			No	Yes	Total
MCI_TOT_MEDIAN	.00	Count	4443	16	4459
		Expected Count	4449.6	9.4	4459.0
		% within MCI_TOT_ MEDIAN	99.6%	.4%	100.0%
		% within Competitive employment	55.1%	94.1%	55.2%
	1.00	Count	3616	1	3617
		Expected Count	3609.4	7.6	3617.0
		% within MCI_TOT_ MEDIAN	100.0%	.0%	100.0%
		% within Competitive employment	44.9%	5.9%	44.8%
Total		Count	8059	17	8076
		Expected Count	8059.0	17.0	8076.0
		% within MCI_TOT_ MEDIAN	99.8%	.2%	100.0%
		% within Competitive employment	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	10.427[b]	1	.001		
Continuity Correction [a]	8.910	1	.003		
Likelihood Ratio	13.029	1	.000		
Fisher's Exact Test				.001	.001
Linear-by-Linear Association	10.426	1	.001		
N of Valid Cases	8076				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7. 61.

Appendix G

χ^2 Frequency Tables

MCI_SKILLS_MEDIAN

Rehabilitation Technology

MCI_SKILLS_MEDIAN * rehab_tech_dichotmous Crosstabulation

			rehab_tech_ dichotmous		
			.00	1.00	Total
MCI_SKILLS_MEDIAN	.00	Count	4065	223	4288
		Expected Count	4068.7	219.3	4288.0
		% within MCI_ SKILLS_MEDIAN	94.8%	5.2%	100.0%
		% within rehab_ tech_dichotmous	53.0%	54.0%	53.1%
	1.00	Count	3598	190	3788
		Expected Count	3594.3	193.7	3788.0
		% within MCI_ SKILLS_MEDIAN	95.0%	5.0%	100.0%
		% within rehab_ tech_dichotmous	47.0%	46.0%	46.9%
Total		Count	7663	413	8076
		Expected Count	7663.0	413.0	8076.0
		% within MCI_ SKILLS_MEDIAN	94.9%	5.1%	100.0%
		% within rehab_ tech_dichotmous	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.141[b]	1	.707		
Continuity Correction [a]	.106	1	.745		
Likelihood Ratio	.142	1	.707		
Fisher's Exact Test				.723	.373
Linear-by-Linear Association	.141	1	.707		
N of Valid Cases	8076				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 193.72.

Maintenance

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MCI_SKILLS_MEDIAN * maintenance_ dichotomous	8076	100.0%	0	.0%	8076	100.0%

MCI_SKILLS_MEDIAN * maintenance_dichotomous Crosstabulation

			maintenance_ dichotomous		
			.00	1.00	Total
MCI_SKILLS_MEDIAN	.00	Count	4127	161	4288
		Expected Count	4090.5	197.5	4288.0
		% within MCI_SKILLS_ MEDIAN	96.2%	3.8%	100.0%
		% within maintenance_ dichotomous	53.6%	43.3%	53.1%
	1.00	Count	3577	211	3788
		Expected Count	3613.5	174.5	3788.0
		% within MCI_SKILLS_ MEDIAN	94.4%	5.6%	100.0%
		% within maintenance_ dichotomous	46.4%	56.7%	46.9%
Total		Count	7704	372	8076
		Expected Count	7704.0	372.0	8076.0
		% within MCI_SKILLS_ MEDIAN	95.4%	4.6%	100.0%
		% within maintenance_ dichotomous	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	15.088[b]	1	.000		
Continuity Correction [a]	14.677	1	.000		
Likelihood Ratio	15.064	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	15.086	1	.000		
N of Valid Cases	8076				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 174. 48.

Job Search

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MCI_SKILLS_MEDIAN * jobsearch_assist_recode	8076	100.0%	0	.0%	8076	100.0%

MCI_SKILLS_MEDIAN * jobsearch_assist_recode Crosstabulation

			jobsearch_assist_recode		
			.00	1.00	Total
MCI_SKILLS_MEDIAN	.00	Count	2950	1338	4288
		Expected Count	3001.0	1287.0	4288.0
		% within MCI_SKILLS_MEDIAN	68.8%	31.2%	100.0%
		% within jobsearch_assist_recode	52.2%	55.2%	53.1%
	1.00	Count	2702	1086	3788
		Expected Count	2651.0	1137.0	3788.0
		% within MCI_SKILLS_MEDIAN	71.3%	28.7%	100.0%
		% within jobsearch_assist_recode	47.8%	44.8%	46.9%
Total		Count	5652	2424	8076
		Expected Count	5652.0	2424.0	8076.0
		% within MCI_SKILLS_MEDIAN	70.0%	30.0%	100.0%
		% within jobsearch_assist_recode	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.147[b]	1	.013		
Continuity Correction [a]	6.027	1	.014		
Likelihood Ratio	6.155	1	.013		
Fisher's Exact Test				.014	.007
Linear-by-Linear Association	6.147	1	.013		
N of Valid Cases	8076				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 1136.96.

College

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MCI_SKILLS_MEDIAN * college_dicho	8076	100.0%	0	.0%	8076	100.0%

MCI_SKILLS_MEDIAN * college_dicho Crosstabulation

			college_dicho		
			.00	1.00	Total
MCI_SKILLS_MEDIAN	.00	Count	3715	573	4288
		Expected Count	3728.9	559.1	4288.0
		% within MCI_SKILLS_ MEDIAN	86.6%	13.4%	100.0%
		% within college_dicho	52.9%	54.4%	53.1%
	1.00	Count	3308	480	3788
		Expected Count	3294.1	493.9	3788.0
		% within MCI_SKILLS_ MEDIAN	87.3%	12.7%	100.0%
		% within college_dicho	47.1%	45.6%	46.9%
Total		Count	7023	1053	8076
		Expected Count	7023.0	1053.0	8076.0
		% within MCI_SKILLS_ MEDIAN	87.0%	13.0%	100.0%
		% within college_dicho	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.848[b]	1	.357		
Continuity Correction [a]	.788	1	.375		
Likelihood Ratio	.849	1	.357		
Fisher's Exact Test				.371	.187
Linear-by-Linear Association	.848	1	.357		
N of Valid Cases	8076				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 493. 90.

Competitive Employment

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MCI_SKILLS_MEDIAN * Competitive employment	8076	100.0%	0	.0%	8076	100.0%

MCI_SKILLS_MEDIAN * Competitive employment Crosstabulation

			Competitive employment		
			No	Yes	Total
MCI_SKILLS_MEDIAN	.00	Count	4275	13	4288
		Expected Count	4279.0	9.0	4288.0
		% within MCI_ SKILLS_MEDIAN	99.7%	.3%	100.0%
		% within Competitive employment	53.0%	76.5%	53.1%
	1.00	Count	3784	4	3788
		Expected Count	3780.0	8.0	3788.0
		% within MCI_ SKILLS_MEDIAN	99.9%	.1%	100.0%
		% within Competitive employment	47.0%	23.5%	46.9%
Total		Count	8059	17	8076
		Expected Count	8059.0	17.0	8076.0
		% within MCI_ SKILLS_MEDIAN	99.8%	.2%	100.0%
		% within Competitive employment	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.738[b]	1	.053		
Continuity Correction [a]	2.856	1	.091		
Likelihood Ratio	3.974	1	.046		
Fisher's Exact Test				.086	.043
Linear-by-Linear Association	3.737	1	.053		
N of Valid Cases	8076				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7. 97.

Appendix H

χ^2 Frequency Tables

MCI_AW_MEDIAN

Rehabilitation Technology

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MCI_AW_MEDIAN * rehab_tech_dichotmous	8076	100.0%	0	.0%	8076	100.0%

MCI_AW_MEDIAN * rehab_tech_dichotmous Crosstabulation

			rehab_tech_dichotmous		
			.00	1.00	Total
MCI_AW_MEDIAN	.00	Count	3718	224	3942
		Expected Count	3740.4	201.6	3942.0
		% within MCI_AW_MEDIAN	94.3%	5.7%	100.0%
		% within rehab_tech_dichotmous	48.5%	54.2%	48.8%
	1.00	Count	3945	189	4134
		Expected Count	3922.6	211.4	4134.0
		% within MCI_AW_MEDIAN	95.4%	4.6%	100.0%
		% within rehab_tech_dichotmous	51.5%	45.8%	51.2%
Total		Count	7663	413	8076
		Expected Count	7663.0	413.0	8076.0
		% within MCI_AW_MEDIAN	94.9%	5.1%	100.0%
		% within rehab_tech_dichotmous	100.0%	100.0%	100.0%

Chi-Square Tests

		Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square		5.129[b]	1	.024		
Continuity Correction	[a]	4.902	1	.027		
Likelihood Ratio		5.130	1	.024		
Fisher's Exact Test					.026	.013
Linear-by-Linear Association		5.128	1	.024		
N of Valid Cases		8076				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 201.59.

Maintenance

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MCI_AW_MEDIAN * maintenance_ dichotomous	8076	100.0%	0	.0%	8076	100.0%

MCI_AW_MEDIAN * maintenance_dichotomous Crosstabulation

			maintenance_ dichotomous		
			.00	1.00	Total
MCI_AW_MEDIAN	.00	Count	3757	185	3942
		Expected Count	3760.4	181.6	3942.0
		% within MCI_AW_ MEDIAN	95.3%	4.7%	100.0%
		% within maintenance_ dichotomous	48.8%	49.7%	48.8%
	1.00	Count	3947	187	4134
		Expected Count	3943.6	190.4	4134.0
		% within MCI_AW_ MEDIAN	95.5%	4.5%	100.0%
		% within maintenance_ dichotomous	51.2%	50.3%	51.2%
Total		Count	7704	372	8076
		Expected Count	7704.0	372.0	8076.0
		% within MCI_AW_ MEDIAN	95.4%	4.6%	100.0%
		% within maintenance_ dichotomous	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.132[b]	1	.716		
Continuity Correction [a]	.096	1	.756		
Likelihood Ratio	.132	1	.716		
Fisher's Exact Test				.750	.378
Linear-by-Linear Association	.132	1	.716		
N of Valid Cases	8076				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 181. 58.

Job search

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MCI_AW_MEDIAN * jobsearch_assist_recode	8076	100.0%	0	.0%	8076	100.0%

MCI_AW_MEDIAN * jobsearch_assist_recode Crosstabulation

			jobsearch_assist_recode		
			.00	1.00	Total
MCI_AW_MEDIAN	.00	Count	2856	1086	3942
		Expected Count	2758.8	1183.2	3942.0
		% within MCI_AW_MEDIAN	72.5%	27.5%	100.0%
		% within jobsearch_assist_recode	50.5%	44.8%	48.8%
	1.00	Count	2796	1338	4134
		Expected Count	2893.2	1240.8	4134.0
		% within MCI_AW_MEDIAN	67.6%	32.4%	100.0%
		% within jobsearch_assist_recode	49.5%	55.2%	51.2%
Total		Count	5652	2424	8076
		Expected Count	5652.0	2424.0	8076.0
		% within MCI_AW_MEDIAN	70.0%	30.0%	100.0%
		% within jobsearch_assist_recode	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	22.283[b]	1	.000		
Continuity Correction [a]	22.054	1	.000		
Likelihood Ratio	22.317	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	22.280	1	.000		
N of Valid Cases	8076				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 1183.19.

College

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MCI_AW_MEDIAN * college_dicho	8076	100.0%	0	.0%	8076	100.0%

MCI_AW_MEDIAN * college_dicho Crosstabulation

			college_dicho		
			.00	1.00	Total
MCI_AW_MEDIAN	.00	Count	3342	600	3942
		Expected Count	3428.0	514.0	3942.0
		% within MCI_AW_ MEDIAN	84.8%	15.2%	100.0%
		% within college_dicho	47.6%	57.0%	48.8%
	1.00	Count	3681	453	4134
		Expected Count	3595.0	539.0	4134.0
		% within MCI_AW_ MEDIAN	89.0%	11.0%	100.0%
		% within college_dicho	52.4%	43.0%	51.2%
Total		Count	7023	1053	8076
		Expected Count	7023.0	1053.0	8076.0
		% within MCI_AW_ MEDIAN	87.0%	13.0%	100.0%
		% within college_dicho	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	32.339[b]	1	.000		
Continuity Correction [a]	31.964	1	.000		
Likelihood Ratio	32.393	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	32.335	1	.000		
N of Valid Cases	8076				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 513. 98.

Competitive Employment

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MCI_AW_MEDIAN * Competitive employment	8076	100.0%	0	.0%	8076	100.0%

MCI_AW_MEDIAN * Competitive employment Crosstabulation

			Competitive employment		
			No	Yes	Total
MCI_AW_MEDIAN	.00	Count	3934	8	3942
		Expected Count	3933.7	8.3	3942.0
		% within MCI_AW_ MEDIAN	99.8%	.2%	100.0%
		% within Competitive employment	48.8%	47.1%	48.8%
	1.00	Count	4125	9	4134
		Expected Count	4125.3	8.7	4134.0
		% within MCI_AW_ MEDIAN	99.8%	.2%	100.0%
		% within Competitive employment	51.2%	52.9%	51.2%
Total		Count	8059	17	8076
		Expected Count	8059.0	17.0	8076.0
		% within MCI_AW_ MEDIAN	99.8%	.2%	100.0%
		% within Competitive employment	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.021[b]	1	.885		
Continuity Correction [a]	.000	1	1.000		
Likelihood Ratio	.021	1	.885		
Fisher's Exact Test				1.000	.540
Linear-by-Linear Association	.021	1	.885		
N of Valid Cases	8076				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8. 30.

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